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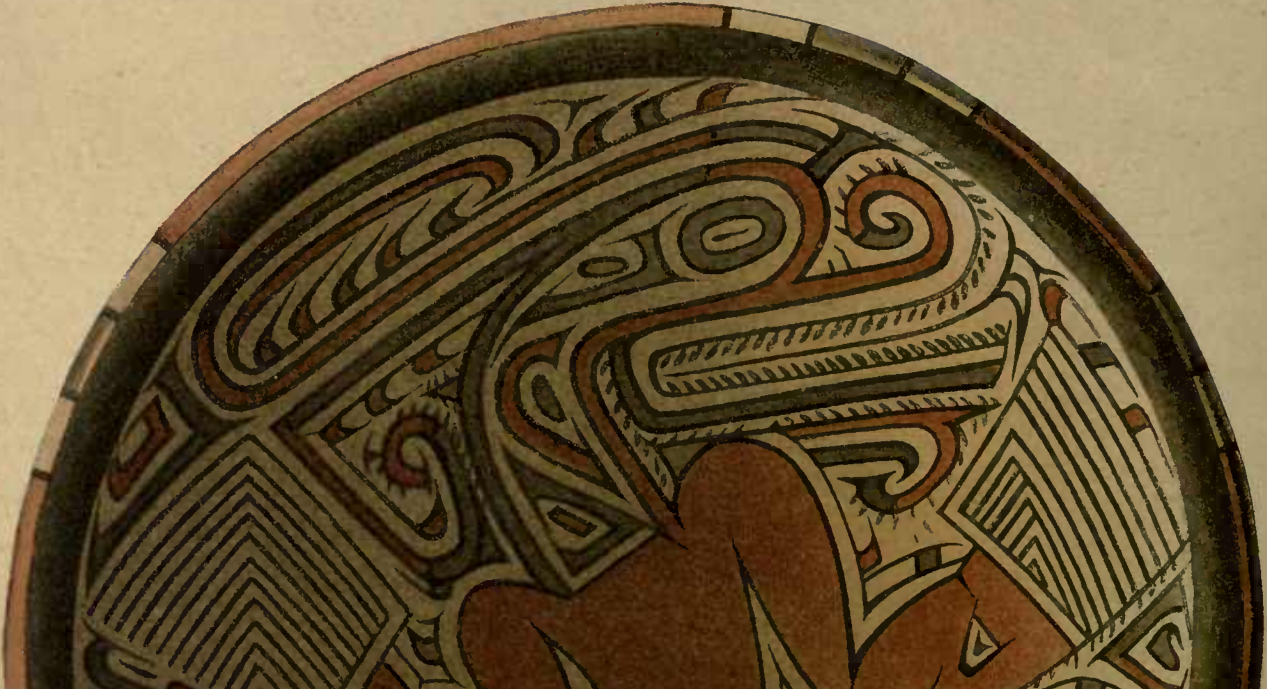

Plate I

(Frontispiece.)

Interior of a shallow chalice artistically decorated with alligator motives, the central figure being that of the alligator-god; a gem of aboriginal art and symbolism. Three-fifths. Page 159. (See Pl. XLV.)

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A Study of Chiriquian Antiquities

BY

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PREFACE.

This volume is chiefly the result of a careful study of the unparalleled collections of Chiriquian antiquities belonging to Yale University. These, and especially the gold ornaments, have been supplemented by other collections, public and private, notably those of Mr. George G. Heye and of Mr. Minor C. Keith, both of New York. If the work has merits, they are due in no small measure to the character and extent of the collections examined. Its defects should be ascribed in part, at least, to the fact that, having been prevented by force of circumstances from visiting the region in question, my investigations have been limited to museums and libraries. For this reason the choice of title: "A Study of Chiriquian Antiquities," would seem to be particularly appropriate. Unless otherwise stated in their description, the illustrations are from specimens in the Yale collection.

From the view-point of conventionalism, the art of Chiriqui is so instructive that much space is given to the evolution of decorative motives from animal forms. In this connection, I wish to acknowledge my indebtedness to two previous writers on the subject, Professor F. W. Putnam of Cambridge, Mass., and Professor William H. Holmes of Washington, D.C. The nature of the study has necessitated the free use of illustrations, in the preparation of which much care has been bestowed. With the exception of the drawings from tracings, the illustration from de Bry (fig. 324), and the five cuts (figs. 277, 278, 331, 332, 365), for the use of which my thanks are due to the Bureau of American Ethnology, they were all made for this volume by Mr. Rudolph Weber of New York, and his assistant, Mr. William Baake. The cost of the drawings, both pen-and-ink and water-color, has been borne by Mrs. Evelyn MacCurdy Salisbury of New Haven, without whose generous coöperation the work could not have been prepared.

Among others whom I desire to thank for coöperation in various ways should be mentioned Professor Charles Schuchert for facilities at the Museum, Professor Joseph Barrell for determining the nature of the materials from which the stone objects were made, Mr. Max Dessauer for testing the powers of the musical instruments, Professor J. W. D. Ingersoll for the translation of a sixteenth century text, and Professor B. B. Boltwood, Dr. C. H. Mathewson, Dr. George F. Kunz of New York, and Mr. Harry N. Ray, for measurements, tests and observations bearing on the metal work.

In New York also where my studies led me, are a number to whom I am much indebted. Mr. George G. Heye and Mr. Minor C. Keith both placed their valuable Chiriquian (and Costa Rican) collections at my disposal, as did also Mr. Edwin Lamson, Dr. Wm. J. Lamson, the Lenox Branch of the New York Public Library through Mr. Wilberforce Eames and Mr. W. A. Elliot, and the Metropolitan Museum of Art through Sir Purdon Clarke and Mr. John H. Buck. To Professor M. H. Saville of Columbia University, I am likewise under obligations for access to comparative material and for valuable suggestions.

M841223

Although the late Professor Othniel C. Marsh died nearly seven years before I began the study of Chiriquian antiquities, it was his foresight, generosity and consummate skill as a collector that brought together the series on which this volume is primarily based. Mention in this place of the part he played is but an inadequate expression of the tribute I would pay to his memory. In the reading of copy and proofs I gratefully acknowledge the valuable assistance of Miss Lucy P. Bush, for sixteen years assistant and private secretary to Professor Marsh, of Dr. Katharine J. Bush, and Miss Mary S. Gillette.

In thanking Yale University and the Connecticut Academy of Arts and Sciences, through the Committee on Publication acting on behalf of both, for means of diffusing the results of this study, it is most fitting that I should recall the debt our science owes to the American Ethnological Society, which published nearly all the early literature, now exeedingly rare, on the subject of Chiriquian antiquities, and which at that time numbered among its members such distinguished Yale professors as President Theodore Dwight Woolsey, Professors Edward Elbridge Salisbury and J. Willard Gibbs, the elder and S. Wells Williams, who later became professor of Chinese at Yale.

YALE UNIVERSITY, NEW HAVEN, CONN.,
May 26, 1909.

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INTRODUCTION.

History.—Chiriqui is the name of a lagoon, river, volcano and province, the latter being the westernmost province of the new Republic of Panama; the term therefore has no connection whatever with Cherokee with which it is sometimes confused. The word is evidently of Indian origin, the meaning of which I have been unable to trace. It appears in the works of Oviedo[1] as *Cheriqui* and has since suffered little change in spelling. In this respect it has fared better than many early geographic names. The same may be said of Panama, a word that means "abounding in fish," and that has been retained as the name of a town since 1519, also of a bay and of the Isthmian region, although the political fortunes of the latter have been checkered indeed. Among its early governors were Diego de Nicuesa, Vasco Nuñez de Balboa, who was the first white man to cross the Isthmus (1513), and Pedro Arias de Avila, commonly known as Pedrarias Davila, who founded the city of Panama (1519). The Isthmus was incorporated under the vice-royalty of New Granada in 1718 and, with the exception of the period of independence from 1859–61, was a part of that South American country under its changing titles, first as the New Kingdom of Granada (1719–1810), then as Republic of New Granada, United States of Colombia, and Republic of Colombia, respectively, until November, 1903, when it became an independent republic.

Panama was the first region in continental America to be settled by Europeans, and since 1535 has had a special importance because of the possibilities of a trade route across the Isthmus. The value of such a route was seen by Oviedo, the historian, who accompanied Pedrarias Davila to the Isthmus in 1514. The following is taken from The [natural] hystorie of the vveste Indies, by Oviedo y Valdés:[2]

"And if therfore this nauigation may be founde in the South sea for the trade of spices (as we trust in God) to bee brought from thense to the sayde porte of *Panama* (as is possible enough) they may afterwarde easly passe to the Northe sea notwithstandynge the difficultie of the waye of the XX. leaques aforesayde. Whiche thynge I affirme as a man well trauayled in these regions, hauynge twyse on my feate passed ouer this strayght in the yeare. 1521. as I haue sayde. It is furthermore to be vnderstode, that it is a maruelous facilitie to bryng spices by this way which I wil now declare. From *Panama* to the ryuer of Chagre, are foure leaques of good and faire way by which cartes may passe at pleasure by reason that the mountaynes are but few and lyttle, and that the greateste parte of these foure leaques is a playne grounde voyde of trees. And when the cartes are coomme to the sayde ryuer, the spices may be caryed in barkes and pinnesses. For this ryuer entereth into the North sea fyue or. VI leaques lower than the port of *Nomen dei*, and emptieth it selfe in the sea nere vnto an Iland cauled *Bastimento*, where is a very good and safe port. Yowr maiestie may now therfore consyder howe great a thynge and what commoditie it may be to conuey spices this way, forasmuch as the ryuer of *Chagre* hauyng his originall only two leaques from the South sea, contineweth his course and emptieth it selfe into the other North sea. This ryuer runneth fast and is very greate, and so commodious for this purpose as may be thowght or desyred. . . . But to returne to speake sumwhat of the conueying of spices, I say that when it shal please almighty god that this nauigation aforesayde shal bee founde by the good fortune of yowre maiestie, and that the spices of the Ilandes of the South sea (which may also bee otherwyse cauled the Ocean of the East India in whiche are the Ilandes of *Molucca*) shalbe browght to the sayd coaste and the porte of *Panama*, and bee conueyd from thense (as we haue sayde) by the firme lande with cartes unto the ryuer *Chagre*, and from thense into this owr other sea of the North, from whense they may afterward bee browght into Spayne, I say that by this meanes the vyage shall bee shortened more then seuen thousande leaques."

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[1] Gonzalo Fernandez de Oviedo y Valdés. Historia general y natural de las Indias, IV, 108, 1855.

[2] The first three books on America; transl. by R. Eden, from the Latin of Peter Martyr of Anghierra; ed. by Edward Arber, 234, Birmingham, 1885.

It was, in fact, the belief in the existence of a short trade route to the Far East that led to the discovery of America. Although called the discoverer of the New World, Columbus saw very little of the mainland — only a short stretch of the South American coast near Trinidad island on his third voyage; and Central America and Panama, on his fourth and last voyage. It was while searching for the straits that might lead him to that part of East India already known to geographers that Columbus entered the bay which forms a part of Chiriqui lagoon and which was named for the great Admiral (*Bahia del Almirante*). He had followed the coast from a point off northern Honduras, opposite the island of *Guanaja*, stopping at a number of places before reaching the coast of Chiriqui. The story of what he did and saw is full of interest, as being the first historic account of a land whose antiquities inspired the present study. On the 25th of September, 1502, "the expedition cast anchor off a certain island called by the natives *Quiriviri*, by Columbus *Husita*, at more than one and a half leagues distance from *Cariay*, a population situated along the banks of a great river (probably San Juan de Nicaragua). The natives came running in great numbers attracted by the strangers. They were armed with bows, arrows and darts made of black palm and pointed with strong fish spines. Others carried long lances and *macanas* [wooden weapons generally edged with sharp flint], and all were nude except about the loins which were wrapped in white and red cotton cloth. The men with long hair tied at the back of the head, and the women with the hair trimmed (*cortado*). Some wore plates of low-grade gold (*guanin*) and others wore jewels of the same metal suspended about the neck."[1]

Before leaving this region, now called the Mosquito Coast, Columbus took on board two of the natives as guides. Sailing on the 5th of October, he soon reached what is now known as Boca del Toro, one of the entrances to Almirante bay. "In one of the ports of these islands in Almirante bay were anchored twenty canoes. The natives went about nude with their bodies painted in colors, wearing plates of fine gold suspended from the neck. These were the first examples of pure gold the Spaniards had seen along that coast, and which also caused them to commit the injustice of taking from two natives the ornaments which the latter had refused to exchange for Spanish trinkets, a fact which proves that traffic by force had some early precedents in the history of America."

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[1] Transl. from J. Acosta. Compendio historico, etc., 2, Bogota, 1901.

Diego de Porras,[1] who accompanied Columbus, is quoted as saying: "The number of pieces of gold which we obtained, great and small, was 220, weighing altogether 9 *marcos*, 3 *ochavas*, 7 *tomines*, and 1 grain (equal to about 80 ounces). There were also 12 pieces of *guani* (gold much alloyed), weighing one mark and six ounces. Two pieces were not weighed — one a large tube, and the other a plate like a mirror." Specimens of the latter class were worn suspended on the breast by chiefs and important personages, who refused to part with them.

All the inhabitants of the islands as well as of the mainland assured the Spaniards that gold was to be found at a number of localities inland, one of which was called Veragua. This name seems to have become the synonym of wealth in the minds of the explorers, and has ever since been linked with the fortunes of the house of Columbus. His grandson Luis Columbus, after having been forced in 1536 to give up all claims to the title of viceroy, received in return, among other things, an estate of twenty-five leagues square in Veragua and the title Duke of Veragua. The land grant was finally given up after several unsuccessful attempts to found settlements; but the dukedom of Veragua still exists, the title having come down through Francesca, a niece of Luis Columbus. During the colonial period, Veragua (or Veraguas) corresponded to the western part of the Isthmus, including the territory of Chiriqui (as well as of Burica).

The 17th of October, Columbus continued his voyage as far as to the mouth of the Guaiga river. Hundreds of natives rushed to the shore brandishing their arms and threatening to prevent the Spaniards from landing. Finally assured of the peaceful mission of the latter, they became quiet and somewhat reluctantly consented to exchange their gold plaques, etc., for Spanish trinkets.

Columbus next anchored in another river a few leagues away, called Cateba. The inhabitants here were also warlike at first, but later bartered away their gold ornaments for hawks'-bells, beads, etc. The Spaniards observed two things that struck them as being worthy of record: One was that the chief, who here as well as almost everywhere along the coast was called *Quibi*, was distinguished from the other natives only by the fact that he protected himself from the constantly falling rain (it was in October) by a great leaf of a tree; the other was a piece of mortar, the first they had seen in America.

Continuing his voyage, Columbus touched at the mouths of the Cobrara and Cubiga rivers. According to the Cariay Indians, no gold was to be found beyond the Cubiga. A few leagues further on, Columbus entered a port to which on account of its beauty he gave the name Puerto Bello. This is but a short distance east of Colon. They pushed still further eastward reaching in turn *Puerto de los Bastimientos* and *Puerto del Retrete*. Finally deciding to return to

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[1] E. G. Squier. More about the gold discoveries of the Isthmus. Harper's weekly, Aug. 20th, 1859.

Veragua in search of gold, they retraced their course, reaching the mouth of the Belen river in January, 1503. Ascending this river and the Veragua and Urira rivers nearby, they exchanged Spanish trinkets for the gold ornaments of the natives. Gold mines were found on the head-waters of the Urira. The brother of the Admiral extended his explorations in the direction of Boca del Toro as far as Cateba. He returned with so much gold obtained from the natives that Columbus wrote to his rulers that he had seen more gold on the coast of Veragua in two days than on the island of Cuba or Haiti in four years. Columbus and his brother decided to found a colony on the Belen river near its mouth. The place was soon abandoned, however, on account of the hostility of the natives and, after following the coast as far eastward as the Gulf of Darien, Columbus set sail for Haiti. More than four centuries have elapsed since then, and his dream of a channel leading to the mainland of Asia is soon to be realized in the completed Panama Canal.

The glitter of gold on the Isthmian shores was not long in attracting other colonists. The Atrato river, flowing northward into the Gulf of Darien, was made the boundary line between two provinces — New Andalusia on the east and Castilla del Oro on the west. The latter included not only the Isthmus but also a considerable portion of the Central American region. Nicuesa, the first governor of Castilla del Oro, attempted to found a settlement at various points earlier visited by Columbus — Belen on the coast of Veragua, Puerto Bello, and Puerto de los Bastimientos, renamed by Nicuesa, *Nombre de Dios;* but his plans were everywhere frustrated by the pestilential climate and by the Indians, whose earlier experience with the white man had tended to increase their hostility. In the meantime, colonists from New Andalusia had formed a settlement on the western coast of the Gulf of Darien, in Nicuesa's territory. Nicuesa, having been rescued from Nombre de Dios, was invited to govern at this new settlement, but proved unwelcome, was deported and was never heard from again. Vasco Nuñez de Balboa was elevated to the command. His exploits during the next few years form one of the most thrilling chapters in the early history of Spanish America. Chief among them was the crossing of the Isthmus and the discovery of the Pacific Ocean in 1513. His outward as well as return journey was a triumph not only of discovery, but also of diplomacy and conquest. The native chieftains everywhere paid him tribute, either voluntary or forced, in the form of gold treasure, provisions, guides and laborers. After subduing two caciques, Careta and Ponca, he next made a friendly visit to the territory of Comagre, ruled over by a cacique of the same name. The dwelling of Comagre, "surpassed anything they had yet seen for magnitude, and for the skill and solidity of the architecture. It was one hundred and fifty paces in length, and eighty in breadth, founded upon great logs, surrounded with a stone wall; while the upper part was of woodwork, curiously interwoven and wrought with such beauty as to cause surprise and admiration. It contained many commodious apartments. There were store-rooms also; one filled with bread, with venison and other provisions; another with various spirituous beverages, which the Indians made from maize, from a species of palm, and from roots of different kinds. There was also a great hall, in a retired and secret part of the building, wherein Comagre preserved the bodies of his ancestors and relatives. These had been dried by fire, so as to free them from corruption, and afterwards wrapped in mantles of cotton, richly wrought, and interwoven with pearls and jewels of gold, and with certain stones held precious by the natives. They were hung about the hall with cords of cotton and regarded with great reverence, if not with religious devotion."[1] The son of Comagre gave Balboa "4,000 ounces of gold, wrought into various ornaments";[2] from him, also, Balboa first received intimation of the Pacific Ocean and the riches of its shores. Before starting on his journey across the Isthmus, Balboa remitted to the King 15,000 crowns of gold, i. e., one-fifth of all collected to date under his jurisdiction.

The incidents of Balboa's expedition across the Isthmus in search of the southern sea are replete with interest. In two days he was at the headquarters of Ponca, who assured him of the truth of what Comagre's son had told Balboa concerning a great sea beyond the mountains, and gave him several curiously wrought ornaments of fine gold which came from the shores of that sea. Setting out anew on a toilsome journey of four days, during which time the expedition covered but ten leagues, they encountered a warlike cacique, Quaraqua, the ransacking of whose village yielded a golden booty. From this village an ascent of a few hours brought Balboa to the crest of the mountains, from which he beheld the broad waters of the Pacific.

Having called upon his followers to witness that he took possession of that sea, and the lands bathed by its waters, in the name of his sovereigns, Balboa began the descent to its shores. He soon encountered the valiant cacique, Chiapes, whose courage vanished at the sight of bloodhounds and of the havoc produced by the mysterious Spanish firearms. Heeding the advice of their Indian guides, Chiapes "came trembling to the Spaniards, bringing with him five hundred pounds' weight of wrought gold as a peace-offering, for he had already learnt the value they set upon that metal. Vasco Nuñez received him with great kindness and graciously accepted his gold, for which he gave him beads, hawks'-bells and looking-glasses, making him in his own conceit the richest potentate on that side of the mountains."[3]

Accompanied by Chiapes, the Spaniards finally reached the salt waters of the Pacific in a bay to which Balboa gave the name of San Miguel. The theatrical and impressive ceremony of taking possession of "these seas and lands and coasts and ports and islands of the south, and all thereunto annexed," being over, Balboa and a company of picked men, in nine canoes manned by Indians, attempted to explore the neighboring gulf (now called San Miguel). After being rescued from the boisterous seas by taking refuge on a small island, they succeeded in reaching the mainland near the dwelling of a cacique named Túmaco. A midnight attack on the village with guns and bloodhounds was successful, the fleeing Indians leaving behind an abundance of provisions, much gold and many pearls. Through the mediation of Túmaco's son and a "mutual exchange of presents, a friendly intercourse was soon established. Among other things the Cacique gave

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[1] Irving. Life and voyages of Christopher Columbus, III, 118, 1892.

[2] Ibid.

[3] Ibid., 141.

Vasco Nuñez jewels of gold weighing six hundred and fourteen crowns, and two hundred pearls of great size and beauty." Túmaco also told Balboa "that far to the south there was a country abounding in gold, where the inhabitants made use of certain quadrupeds to carry burdens. He moulded a figure of clay to represent these animals, which some of the Spaniards supposed to be a deer, others a camel, others a tapir; for as yet they knew nothing of the lama, the native beast of burden of South America."[1]

The last cacique on the Pacific coast to pay tribute to Balboa was Teaochan, from whom he received gold, pearls and an abundant supply of provisions. Recrossing the Isthmus to the Gulf of Darien, the Spaniards passed through the territory of a rich and powerful chief, called Poncra, whose village was ransacked and gold obtained to the value of three thousand crowns. Here they remained thirty days until rejoined by a detachment that had been left at the village of Chiapes. From the cacique who accompanied this party presents were received to the value of two thousand crowns in gold.

Balboa and his men next faced the redoubtable Tubanama, the most powerful of the mountain chieftains and the one of whom the son of Comagre had spoken. In a midnight attack, Tubanama was captured. The price of his ransom was gold ornaments to the value of nine thousand crowns. Nothing, however, would induce him to tell where the mines that produced this treasure were located. Balboa instituted a secret survey which disclosed the presence of gold in such quantities that he planned to found two settlements in the neighborhood.

Balboa's brilliant career was soon cut off by the arrival of the newly appointed governor of Castilla del Oro, Pedrarias Davila, who did not cease to thwart and persecute his gifted and highly successful predecessor, and who finally had him beheaded on a false charge of treason; but not until Balboa with incredible energy and resourcefulness had caused to be transported over the mountains materials and stores for two brigantines in which he was to sail over the waters of the Pacific to the land of the Incas about which Túmaco had informed him.

After founding Panama in 1519, Pedrarias sent Espinosa to explore the Pacific coast to the westward, placing at his command the very ships that had been constructed under almost insuperable difficulties by Balboa. Arriving at the province of Burica, west of the present Chiriquian boundary, Espinosa set out on his return journey by land and was presumably the first Spaniard to cross that part of Chiriqui now celebrated for its antiquities. One ship was sent farther up the coast to a gulf called San Lucar, in Nicaragua. Espinosa first traversed the province of Huista, evidently on Chiriquian territory. Here the Spaniards remained for some time loading their ships with maize before sending them back to Panama. These may have been anchored in the present port of David. They observed that the people of "this province and of that of Burica, were almost exactly the same in the fashion of their clothes, and in their customs. The women wore a truss round their loins, as their clothing; and the men were naked. The country is fertile, with plentiful supplies of fish, and a great quantity of swine,[2] which were caught with large nets of stuff like hemp, called by the Indians *nequen*, the meshes being a finger in breadth. These nets were fastened at the entrance of a wood where there was a herd of swine, who came against the nets and were unable to get through the meshes. Then the people called out, the nets fell over the swine, and they were killed with lances, so that none escaped of those that fell into the nets."[1]

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[1] Op. cit., 148.

[2] They mistook peccaries for swine.

Gil Gonzalez de Avila also coasted along these shores as far as the Gulf of San Lucar. About the same time Francisco Hernandez de Cordova was sent by Pedrarias to subdue and settle Nicaragua. He founded the cities of Leon and Granada. Two of his captains, Francisco Campanon and Soto, objecting to his acts, left overland for Panama where they arrived without horses and barefooted. "They had passed the villages of the Indians at night, and taken provisions from them. Thus they had reached the province of Chiriqui, which is between Burica and Nisca, where there was a settlement which had been made by Captain Benito Hurtado, by order of Pedrarias, called the city of Fonseca. . . . After these ten Spaniards had passed through this city of Fonseca, the captain, with some followers, set out in the direction of Nicaragua, whence the others had come. Thus the settlement was abandoned; for those who remained, seeing that their comrades did not return, went after them to the Gulf of San Lucar."[2] Fonseca, presumably the first settlement made on the Pacific coast of Chiriqui and so soon to be abandoned, was probably at or near the present San Lorenzo on the Rio Fonseca (see map).

With Pedrarias there came Oviedo, the "first chronicler of the New World," and surveyor of the royal foundries, from whom we get a glimpse of the Pacific coast tribes of the region from which our antiquities came. Passages from his *Historia General y Natural de las Indias*,[3] in which Chiriqui is first mentioned, are as follows: "En la costa del Sur, en el golpho de Orotiña, comiença la lengua de Nicaragua, é de allí discurre háçia Poniente; é más adelante çinco leguas hay un grand pueblo de chorotegas á la parte del Levante; é ocho leguas al Poniente de la dicha Orotiña hay otro que se llama Coribia. É son los dos indíos de otra lengua apartada de todas las que se han dicho en esta historia: é allí traen las mugeres bragas, é todo lo demás traen desnudo, é tambien en la provinçia de Cheriqui y en Judea; pero Cheriqui ni Judea no son desta gobernaçion, sino en la costa desde el golpho de Orotiña al Oriente háçia Panamá. En las islas del golpho de Nicaragua ó de Orotiña todas las mugeres traen bragas; é son chorotegas é lo mismo los de Nicoya, como está dicho.

"Desde Nicoya á la parte del Oriente háçia Panamá é Castilla del Oro é lo demás son los caçiques señores: é de allí abaxo al Poniente háçia Nicaragua son behetrias é comunidades, é son elegidos los que mandan las repúblicas. . . .

"La provinçia de los Cabíores es á veynte ó veynte é çinco leguas de Cheriqui, al Poniente en la costa del Sur; é la provinçía de Durucaca es junto á la de Cabíores. En estas dos provinçias hilan los hombres como mugeres, é lo tienen por cosa é offiçio ordinario para ellos.

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[1] Pascual de Andagoya. Narrative of the proceedings of Pedrarias Davila; transl. by Clements R. Markham, 24, London, 1865.

[2] Op. cit., 37.

[3] IV, 108, Madrid, 1855.

"La provinçia que los españoles llaman Judea, llaman los indíos Barecla, la qual confina con Cheriqui y está en la mesma costa del Sur, seys leguas más al Poniente de la dicha Cheriqui: llamáronla Judea, porque es la gente de allí muy vil é suçia é para poco."

Southern Chiriqui, the region which has furnished practically all the antiquities, is to-day almost as difficult of access as it was in the time of Espinosa, Campanon and Oviedo. In order to reach it one must still cross the Isthmus and go by boat from Panama, a distance of 300 miles around the peninsula of Azuero, to the port of David. With the completion of the Panama Canal and the development of the more direct routes over the mountains from Bocas del Toro and by way of Costa Rica this region will become better known commercially as well as archeologically.[1] It first became prominent as a field for archeological research with the discovery of the golden treasure at Bugavita in 1858–9.

Cemeteries and Tombs.—A mountain chain divides Chiriqui into two nearly equal parts. As has been intimated, the ancient cemeteries or huacals, as they are called, in Spanish America are practically confined to the southern half, that is to say, the Pacific watershed. In fact, Dr. Merritt, at one time director of a gold mine in Veragua, had never "heard of any such burial grounds on the northern side of the Isthmus, from the lagoons of Chiriqui to the valley of the Chagres — and where they would have been discovered by the gold-seeker, who has been ransacking this section for more than 300 years." Nevertheless, it is probable that this region will yet yield a rich archeological harvest when it is explored as thoroughly as a part of the Atlantic coast of Costa Rica has been. On the other hand, ancient cemeteries are met with everywhere on the Pacific slope, from near the mountain tops to within a short distance of the sea. An idea of their number and distribution may be had from the account of Thomas F. Meagher,[2] who crossed the Isthmus from David to Bocas del Toro fifty years ago:

"A mile outside Dolega the party stopped at the house of Don Roberto Soes, the discoverer of the golden relics in the Indian graves of Chiriqui. All the way from David we had ridden through thousands of these disemboweled and ransacked graves, and in every direction, for leagues and leagues, from Terraba and Boruca to Santiago de Veragua, we might have seen tens of thousands more."

One of the best known huacals is that of Bugavita (near Bugaba), where so many gold ornaments were found in 1858–9. Dr. Merritt's description of this cemetery is quoted at length because of its excellence and of the fact that copies of his paper are extremely rare:[3]

"The Huacal of Bugaba embraced an area of twelve acres, but was divided into two sections — by a slight depression extending in an east-and-west direction — in which not a single grave has been encountered. This depression of the surface varied in width from eighteen to ten yards, toward the east. The two sections were respectively five and seven acres, and were located on slightly elevated eminences, about four hundred yards from a small river, the course of which is northeast by east at this point. The rise from the river banks to the Huacal is very gradual, except at the northern boundary, which is somewhat abrupt, and around which the river turns toward the east. The general direction of the Huacal is north and south; and the greater portion of the graves were found on the western and southern slopes. There did not appear a general regularity in the position of the Huacas, or graves, but frequently there would occur several side by side. The distance between the grave-pits varied from nine to fifteen inches at the more crowded portions of the Huacal. The universal direction of the quadrangular Huacas is north and south by the polar star.

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[1] A railroad is now being built from Panama to David.

[2] The new route through Chiriqui. Harper's mag., XXII, 198, 1861.

[3] J. King Merritt. Report on the huacals, or ancient graveyards, of Chiriqui; publ. by the Amer. ethnol. soc. previous to vol. I of its Bulletins.

"There are two forms of Huacas or graves — the oval and quadrangular; and their mode of construction is an interesting matter for consideration. I, with a small party of peons, examined carefully and systematically one of the former and several of the latter description; and besides, saw a large number of both varieties opened by parties in the vicinity. The material uniformly employed in the construction of the sepulcher proper was flat and rounded river stone. The oval grave-pits were from four and a half to six feet deep, and from three to four feet in their largest diameters. A wall of the rounded river stone, two and a half to three feet high, lined the grave-pit at the bottom, after the manner of a modern well. From the top of this wall to the surface the entire area of the grave-pit was closely packed with rounded river stone. Within the limits of the wall, which seemed to be the tomb proper, were found principally the golden figures, and the vessels of pottery, etc. The greater portion of the oval or circular Huacas were located in the northern and western sections of the burial-ground; and, as a general rule, yielded the most figures of gold and the finest specimens of pottery. The relics in these were found usually at the eastern and northern sides; and the gold figures sometimes were located, it is said, in the crevices of the wall — but in no instance in the earthen jars associated with them. The circular graves, being confined to the slopes of the Huacal, were more or less covered by the wash from the elevated sections of the Huacal, so that the top stones of the package were in many cases nearly a foot beneath the surface. No vestige of the human body was discovered in the oval Huacas; but a black loam occupied the spaces between the relics and the stone package. Occasionally earthen vessels were found in the stone package near the surface. The quadrangular Huacas were constructed in two modes. In one case the grave-pit was lined by walls of rounded river stone about one third the distance to the surface; and from the top of these walls the entire area of the grave-pit was closely packed with river stone, as in the oval grave. Within the limits of these walls, and in close proximity to the bottom of the grave-pit, were found most of the relics contained in them. These Huacas were larger and yielded more gold images and finer pottery than the other variety of the quadrangular grave, and were in juxtaposition with the oval graves, occurring interspersed with them in the northern and western sections of the Huacal, but abounding principally in the southern portion of the ground. Some of these Huacas were nearly six feet deep, especially those situated in the depressed sections of the Huacal, and the area of the grave-pit measured frequently seven by four and a half feet. In these the relics were usually found near the bottom, at the northern and southern extremities, and more or less on the eastern side. The gold figures most frequently were located about one fourth of the distance from the head to the foot of the grave-pit, and in the medial line. In these Huacas, also, earthen vessels were encountered in the stone package near the surface, and generally at either extremity.

"The other variety of the quadrangular Huaca, although poor in relics, was more artistically and carefully constructed, and in a better state of preservation; for in many of them everything was encountered '*in situ.*' In these a vault existed, which was formed of flat river stone, and was of the requisite size to contain a human body in the supine position, so far as the length and breadth are considered, but in the height giving ample space for the introduction of the earthen relics. These Huacas were located mostly on the more elevated portion of the Huacal, and in the southern and eastern sections. A grave-pit had been sunk about three feet deep and six and a half by four feet in area; and then a lesser pit, by eight to ten inches on all sides, was farther sunk to the additional depth of about two feet. This smaller pit was lined by flat stones placed edgewise, which were held in position by other flat stones resting flatwise upon the upper edges of these and the surface of the recess in the sides of the grave-pit. The floor of the vault was not paved, but presented a hard, pebbly clay surface, with two depressions frequently, one at either extremity, and corresponding with the probable positions of the occiput and the heels of the body. The cover to the vault was composed of flat stones, quite closely adjusted, and sufficiently overlapping the sides to be firm, and not liable to cave in from the variations of position of the sides, consequent upon subsequent settlings of the earth and stone from natural causes. From the cover of the vault to the surface, the entire area of the grave-pit was closely packed with river stone, somewhat larger than ordinary paving-stone. In these Huacas the relics were also found mostly in the vault, at the head and foot, and on the east side. So far as my experience goes, earthen-ware only was found in these, although I was told that a few had contained the smaller gold figures. Specimens of pottery were encountered also in these, at either extremity of the stone package, immediately above the cover of the vault. The location of these vaulted Huacas, being the more elevated section of the burial-ground, and the vaults also preserving their outlines, the stone package of most of them was slightly raised above the general surface. A black loamy earth occupied all the graves proper, or the original position of the body in it.

"It would seem, from the facts I have stated, that the gold-bearing graves were those which were ruder in their construction, and which occupied, to some degree, a particular section of the Huacal, although the limits of this were not well defined. The golden ornaments were not found in many successive Huacas, even at the richest points of the Huacal. Pottery, however, was encountered more or less in every Huaca. It is reported that in other Huacals, in the vicinity of Bugaba, traces of human hair have been discovered; but in those of Bugaba, which I explored carefully, no such evidence of the body was encountered. I have, however, the enamel of a molar tooth, taken from a grave in a Huacal, near that of Bugaba."

Mr. John F. Bateman, a companion of Dr. Merritt, explored a number of huacals in the highlands near the Volcano of Chiriqui. Some of these were on the headwaters of the river Caldera, east of the Volcano. At one place about three hundred circular graves were found. Nearby was a huacal some twelve acres in extent and completely covering the elevated portion of a pasture (*potrero*). The graves were so close together "that in excavating one we would open three or four others. These were all regularly built sepulchres; the body having been laid on the hardpan or clay, the sides formed of flat stones, and these covered with large flat stones, many of which would measure a yard square. In these graves, and those in the adjoining forest, which vary in depth from three to four feet, are found the same river stones. In the forest are found additional stones,— quadrates, of four inches by twenty inches in length. These were placed vertically, thirty inches apart, around the edge of the quadrangular graves.

"In this locality I witnessed the opening of a large grave about ten feet in depth, marked by five round pillars of stone, of fourteen inches in diameter and from five to six feet in length,— three to four feet of which were in the ground. The pillars were placed to represent a square with one in the center. Under this one, on the clay, was found a plate of gold, four inches in diameter, and the small figure of an anteater. No pottery was found in this grave, and this was the only one in that locality containing gold. Stone hatchets were found here, but no musical instruments. The pottery was all small, and rude in shape and material. Small basins standing on three feet, each [foot] of which contained a small pellet of clay. None of the pottery was either glazed or painted."[1]

Bateman also found a huacal north of the Volcano, presumably near the source of Rio Chiriqui Viejo. Following the ridge for a mile, he came upon the graves he had long wished to see — "those marked with pillars of basalt, mossgrown and bearing marks of extreme age." The grave opened by Bateman was marked by four pillars in a line; the one at the south end was large, and the other three, at intervals of thirty inches, were smaller. Large quantities of river stone of all sizes were found in this grave, also great quantities of broken pottery, different in quality from any previously discovered. "It was very thick and finely glazed[2] on both sides." The condition of the clay at a depth of five feet pointed to a double burial, the position of the bodies being marked by black loamy earth alone.

De Zeltner, from whom the Yale Museum obtained some of the finest specimens of pottery, speaks of six types of Chiriquian graves: (1) The oval cist; (2) quadrangular grave, with walls and roofing of stone, one meter wide by about two and a half meters long; (3) so-called fortified tombs, deeper than the two preceding, quadrangular in form, with a square stone pillar at each corner and a fifth stone pillar of smaller size at the center; (4) tombs with roofing of flag stones and provided with four pillars one and a half meters high. Between the pillars the walls are built up of rounded stones; (5) tombs with roofing of earth, according to de Zeltner,[3] the most common type of all and described by him at length:

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[1] J. F. Bateman. Bull. Amer. ethnol. soc., I, 28, 1860–61.

[2] He evidently employs the term *glaze* in the sense of slip.

[3] A. de Zeltner. Note sur les sépultures indiennes du département de Chiriqui, Panama, 1866.

"Après avoir écarté les obstacles accumulés par le temps et la végétation, on découvre au niveau du sol un pavage, en forme de carré long, de trois à quatre mètres de long sur une largeur de deux ou trois, et de quatre-vingts centimètres d'épaisseur en général; à chaque angle, un pilier carré en pierres, de 1.60 de hauteur et de 0.25 au plus d'épaisseur. Au centre, à distance égale des quatre angles, se trouve un autre pavage carré, correspondant au premier. Celui-ci recouvre une voûte en forme de citerne, d'un mètre de long et de quatre-vingts centimètres à peu près de large. Le sol est empierré, et c'est la véritable entrée de la guaca. A deux mètres à peu près de profondeur se trouve enfin le tombeau, dont la distance du premier pavage est en définitive de quatre a cinq mètres. Cette sorte de chambre a près de trois mètres de long, deux de large; et sa hauteur n'est guère que d'un mètre et demi. Elle est creusée dans le sol sans être revêtue d'aucune espèce de maçonnerie. Sa forme est pyramidale, et la pente commence a l'entrée pour aller en diminuant jusqu'au fond"; (6) canal tombs, recognized by a surface packing of river stones, two meters long by one meter in width. Beneath this the tomb is sunk in the earth and is not lined with stones of any kind.

Mr. J. A. McNiel, who collected most of the specimens figured in this work, witnessed the opening of many graves. He says there are seldom surface indications to attract the inexperienced eye, the location of the grave being ascertained by thrusting a light iron bar into the ground till it strikes the stone roofing over the vault. The latter varies in depth from one to five meters. Even after allowing for surface wash and fill, there must have been considerable variation in the original depth of the graves, as some of the deepest ones were so situated as to preclude the possibility of subsequent fill. According to McNiel, the flat roofing stones rest upon round ones which form the walls of the vault. These were evidently brought from river beds, and in many cases from long distances, as they are more water-worn and much smoother than the stones of the locality in question. He found no apparent orientation in a given direction, the graves, about a thousand, in all the groups examined by him being "promiscuously strewn at much cost of space."

M. A. L. Pinart,[1] a later observer, states that the oval cists are the most numerous; and mentions a rectangular type of grave with walls and roofing of flat stones. The human bones were placed on the floor of the chamber with no apparent order, generally near the walls. The gold ornaments were with the bones, while the pottery and stone objects were found at the center. He also speaks of another class with rudely built chamber, whereas "sur les côtes on avait creusé dans la parois des niches, parfaitement garnies de dalles dans lesquelles étaient déposés les cadavres; chaque niche se fermait par une autre dalle." In such tombs the artifacts of stone and pottery were placed in the chamber, the gold ornaments, however, occurring only in the niches. Pinart insists that there are but two kinds of graves in Chiriqui (and in all Panama), and is equally sure that the bones were cleaned before being interred.

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[1] Chiriqui: Bocas del Toro, Valle Miranda. Bull. Soc. de géogr. de Paris, 7e sér., VI, 433, 1885.

In comparing the description of the graves as given by various observers, the latter appear to agree in certain respects and differ in others. For example, all agree that there were at least two generalized forms of graves — the oval and the quadrangular. There is also agreement as to their dimensions and depth beneath the surface. That one type of quadrangular grave was walled with flat stones placed edgewise and covered with one or more flat stones, there seems to be common accord. The floor of all the graves, both oval and rectangular, was simply earth or hard-pan. Any attempt to further harmonize the descriptions of the various observers, however, results in the accentuation of numerous contradictions and discrepancies. Merritt describes a quadrangular type of tomb, with walls of rounded river stone, resembling in every respect the oval cist except in horizontal section. The only other author who mentions this kind of lining for any but the oval graves is de Zeltner, yet he adds features not noted by Merritt, such as a pillar at each corner and a roofing of flag stones. Bateman was present at the opening of a grave, at each corner of which was a round pillar and a fifth pillar in the center. This may have been the grave on which de Zeltner bases his class number three, but he speaks of the pillars as being square instead of round. Curiously enough, de Zeltner's fifth class, the one he calls the largest in point of numbers, is not mentioned by any other writer. McNiel could discover no apparent attempt at orientation. On the other hand, Merritt says the universal direction of the quadrangular graves at Bugaba (Bugavita) is north and south by the polar star. Bateman, also, was satisfied that the bodies were all placed north and south.

Merritt says that, as a general rule, the circular graves at Bugavita yielded the most figures of gold and the finest specimens of pottery; and that the quadrangular cist lined with rounded stones contained more gold images and finer pottery than the vaults built of flat stones, the latter, although more artistically and carefully constructed and in a better state of preservation, being poor in relics. In referring to the same cemetery Bateman states that gold is found in some of the graves, "while others in close vicinity, although containing more pottery, and that of a higher order, contained no gold,— the richest graves having the least pottery." According to McNiel, the oval grave-pits had very few artifacts of any kind. His workmen informed him that where stone images were found, "it was looked upon as indicating a rich grave in pottery and probably gold."

Mr. C. V. Hartman[1] gives a careful description of graves examined by him in the highlands and on the east coast of Costa Rica where the same two generalized types abound — the oval and the quadrangular, the latter being the more abundant. Both classes were often found in the same group, as was the case at Bugavita. The two kinds resemble those of Chiriqui except that Hartman mentions a floor of cobble-stones for the oval pits and of flat stones for some, at least, of the quadrangular cists. The walls of the latter were either of flat stones set on end or of cobble — stones, depending on nature's supply. As many of these rectangular cists are shorter than the average human body reclining horizontally at full length, the disposition of the remains in such graves points to the custom of interring the bones or only a part of them instead of the corpse. Pinart believes that this custom also prevailed in Chiriqui.

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[1] Archæological researches in Costa Rica, Stockholm, 1901.

Human Remains.—The rarity of human remains in Chiriquian graves has often been emphasized as indicating either the practise of cremation or a great antiquity for the graves. Evidences of cremation, however, are lacking. That it would require a long period of time for bones buried in a region of great rainfall to decay completely, is by no means certain. Dr. Merritt points out that a black loamy earth marked the position of the body in all the graves at Bugavita. No human hair was found in these, but the enamel of a molar tooth, as well as human hair, were obtained from neighboring cemeteries. In the double burial noted by Bateman, "there were no signs of human remains,— only the black loamy earth showing the original position of the body." He also mentions having seen, "taken from a grave of the quadrangular kind, three teeth, a small piece of bone, apparently a rib, and three pieces of the skull of a human body, but so fragile that they crumbled at the touch and by exposure." Seemann states that human skeletons are sometimes met with in the graves, but that they crumble into dust on being removed. McNiel, who opened more than a thousand graves, found human bones in some of them, but did not succeed in obtaining a single skull even approximately complete. The disposition of the human bones in the graves was such as to convince Pinart that the bones were buried after the flesh had been removed. Another peculiarity recorded by the latter author is that gold, when present, was always associated with the bones, whether the latter were placed near the walls of the vault or in adjacent niches, while the artifacts of stone and bone were not.

De Zeltner states that very friable fragments of human remains are sometimes found in graves of the second, fourth and fifth types, as described by him, but no trace of human bones is found in the other three types. He secured one cranium sufficiently well preserved to be cast. A copy of this in plaster was presented to the American Ethnological Society at its April meeting in 1860, by Dr. J. P. Kluge and Mr. William Nelson[1] of Panama. The cranium is described as "entire except the upper jaw, small for an adult, and rather broad in the middle and flat behind." All efforts to trace this cast or its original have proved unavailing.

Another Chiriquian human skull, collected by Dr. E. Menard,[2] a physician in the employ of the French Panama Canal Company, was given by him in 1890 to the School of Anthropology, Paris. It is described as having "un front bas et rétréci mais droit, avec bosse frontale saillante, un indice céphalique, 78.5." Dr. Menard also speaks of an artificial deformation that would seem to indicate some connection with ancient Peruvian skulls.

People.—The discoverers of the Isthmus all testify to its relatively large Indian population. A century later (1606), the missionary, Melchor Hernandez, found as many as six distinct languages spoken on and near the shores of the Chiriqui lagoon by ten different tribes, as follows: Borisques, Bugabaes, Chagres, Cothos,

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[1] Hist. mag., IX, 158, 1865.

[2] Les poteries des sépultures indiennes du Chiriqui; chez Pichat à Châtillon-sur-Seine, 1881.

Dolegas, Dorasques, Dures, Utelaes, Zaribas and Zunes. The reduction has gone steadily on since the advent of the European. According to Gabb,[1] "A strange fatality seems to hang over these Isthmian Indians. Even when not brought into contact with the debasing influences of civilization, the tribes are visibly diminishing." To other obliterating agencies must be added intermixture with the blood of both whites and blacks.

Brinton[2] draws the ethnographic boundary line between North and South America at the mountain chain which separates Nicaragua from Costa Rica, and the head-waters of the Rio Frio from those of the more southern and eastern streams. "Beyond it we come upon tribes whose linguistic affinities point towards the southern continent." Fernandez states that at the time of the discovery the outposts of Nahuatl civilization did not reach farther south than Chiriqui lagoon, while Uhle places the northern limit of Peruvian culture at Pasto. The region between includes the present republics of Colombia and Panama, and forms a linguistic and archeological barrier between the great civilizations of Mexico and Peru. In this culture zone the dominant factor is Chibchan. The original home of the Chibchas was on the plains of Bogota and Tunja. Brinton believes their language to have been "much more widely disseminated throughout New Granada at the time of the discovery than later writers have appreciated." Dr. Max Uhle's[3] important researches serve to confirm this view. The dialectic evidence points to attrition and gradual loss of the original form as one proceeds from Colombia through the Isthmus into Costa Rica, making it clear that the invasion was from South America into North America, and not the reverse. Thus, even in Costa Rica, the only tribes whose language shows no affinity with the Chibcha are the Guetares and Orotiñans, both belonging to the Chapanec linguistic stock of Chiapas, and the Guatusos, which, judging from the vocabularies already collected, are an independent stock related neither to the Nahuatl nor the Chibcha. As for Panama, the only possible breaks in the Chibcha linguistic chain of influence are to be found among the Cunas or Coibas, who at the time of the discovery occupied the territory from the Gulf of Darien and the Atrato river on the east to the river Chagres on the west, and the Changuina-Dorasque stock of Chiriqui. Uhle points out certain verbal similarities between the Cuna and Chibcha, while Pinart, who has published extensively on the Cuna, notes affiliations with the Carib. The present state of our knowledge would not warrant its classification with either of these linguistic stocks.

The tribes occupying the province of Chiriqui in recent times are the Guaymis and Dorasques. The Guaymis inhabit both slopes of the Cordillera and are divided into three sub-tribes, each speaking a distinct dialect: (1) The Muois, of whom only three were living in 1880, (2) the Moves or Valientes, and (3) Murires or Sabaneros. The generic name Guaymi is from the Muoi dialect and means *man*.

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[1] Wm. M. Gabb. On the Indian tribes and languages of Costa Rica. Proc. Amer. philos. soc., XIV, 491, 1875.

[2] D. G. Brinton. The American race, 164, 1901.

[3] Verwandtschaften und Wanderungen der Tschibtscha. C. R. Congrès intern. des Américanistes, 466, Berlin, 1888.

Pinart[1] has every reason to believe that the Guaymis are the descendants of the race that constructed the ancient huacals from which our Chiriquian antiquities came. They have a tradition to the effect that before the arrival of the Spaniards and even for a certain period after that event, they manufactured pottery, but by reason of the greater durability of the iron pots and the ease with which they could be procured, the art of pottery making was lost by degrees. They were also metal workers in gold, copper and their alloys. On the occasion of Pinart's visit the natives still possessed a number of gold ornaments which they claimed to have inherited from their ancestors and which differed in no respect from those found in the graves. In this connection it is of interest to recall a similar condition of affairs among the Tiribis of Costa Rica, as related by Gabb:[2] "The chiefs on great occasions wear gold ornaments, similar to those now found in the *Huacas* of Chiriqui. Whether these have been recovered from some of these graves, or whether they have been handed down from time immemorial, is not known." Of the four or five seen by Gabb, two belonged to the reigning chief and three represented birds, one of which was double, no doubt similar to those in the Keith collection, recently found at Mercedes, Costa Rica.

Pinart describes the Guaymis as living in separate houses, the walls of which are of bamboo or reeds, and the roofs, of palm leaves. The interior is divided into small rooms by bamboo partitions, each member of the family having his own room. The furnishings are simple — a few rude hammocks and wooden blocks for seats (see fig. 22). Kitchen utensils include metal pots of European origin, a flat stone serving as a species of metate on which to grind cocoa and maize, calabash plates and saucers, gourds for conserving water, a wooden mortar and pestle for decorticating rice and other grains. Their arms consist of bows and arrows, lances with points of hard wood, also a lance with several points for fishing, and the inevitable machete. Formerly they used a small shield made of tapir skin.

Their costume is simple. They paint the body. The male wears a simple loin cloth made of bark (*ñumi*); the female, a band somewhat larger that descends to the knees. When it rains, both sexes wear a large sleeveless mantle of bark reaching below the knees. Ornaments include necklaces and bracelets of animal teeth or of glass. During the grand ceremonies the chiefs wear diadems composed of showy feathers, those of the *quetzal* being the most esteemed. Each community recognizes a hereditary chief.

According to Pinart, the Guaymis are of small stature with a tendency to corpulence, and of a robust constitution; color, yellowish brown to dark brown; hair black, stiff and glossy; the head large in proportion to the body, long oval; the face particularly flat and broad between the zygomatic arches; nose prominent, often thick at the base; mouth large and lips thick; beard almost wanting and the body devoid of hair. The same author speaks of artificial deformations of the teeth, the canines being faceted so as to resemble saw-teeth; also the absence among women of the upper left canine, which is knocked out at the time of the first menstruation.

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[1] A. L. Pinart. Bocas del Toro, Valle Miranda (avec carte dans le texte). Bull. Soc. de géogr. de Paris, 7e sér., VI, 433, 1885.

[2] Op. cit., 519.

Among the Guaymis are found manifest traces of totemism, each tribe, family and individual having its tutelary animal. Like American Indians in general, they believe in spirits and animism, employing magicians (*sukia*) and making offerings to appease evil spirits. The dead are carried far into the forest and placed on a scaffold. After a year has elapsed an official goes to the place, cleans the bones, binds them in a package and transports them to the family sepulcher. Formerly they deposited with the dead all his possessions. The Talamancas of Costa Rica dispose of their dead in a similar manner.

The Changuina-Dorasque stock formerly occupied the greater part of the province of Chiriqui. By the middle of the XVIIIth century their limits were confined to the plains of Chiriqui. In 1887 their number was reduced to thirteen or fourteen persons of pure blood, living chiefly near Bugaba, Caldera and Dolega (see map). As to the Dorasque tribe proper, the last member died between the years 1882 and 1887. They were said to be lighter in color than the Guaymis and also less cultured.

As between the Guaymis and the Dorasques, Pinart believes the former to be the descendants of the ancient Chiriquians. Dr. Berendt[1] would give the credit to the Cunas or Coibas, but as he apparently included the Guaymis among the Coibas, his conclusion does not differ materially from that of Pinart. Linguistically the Guaymis are more closely related to the Talamancas, the Terrabas and the Borucas (or Bruncas) than to the Dorasques. Curiously enough the antiquities from Boruca and Terraba have many points in common with those from Chiriqui. That there was intercourse between the territory of the Talamancas (Mercedes) and Chiriqui, is also attested by archeological evidence. The latter therefore supports the claim of the Guaymis, who with the Borucas, Terrabas and Talamancas belong to the Chibcha linguistic stock.

If, then, the language was influenced by migrations from the south, did these also bring the dominant forces that molded the art of Chiriqui? Pinart thinks not, but that the ancient art of Chiriqui was influenced more by Mexico than by the South. The northern impulse might have been transmitted along the Pacific Coast. It could have also come down the Atlantic side; for when in 1564, Coronado subdued the Guaymis and Talamancas, he also encountered, in the valley of Coaza (Robalo?), a stream that flows into the Almirante bay, the Chichimecs, now extinct. In order to communicate with the chief of this tribe it was necessary to employ a Mexican interpreter. The art of Nicoya, of eastern Costa Rica and of Chiriqui, is certainly superior to that of the Isthmian provinces to the east of Chiriqui.

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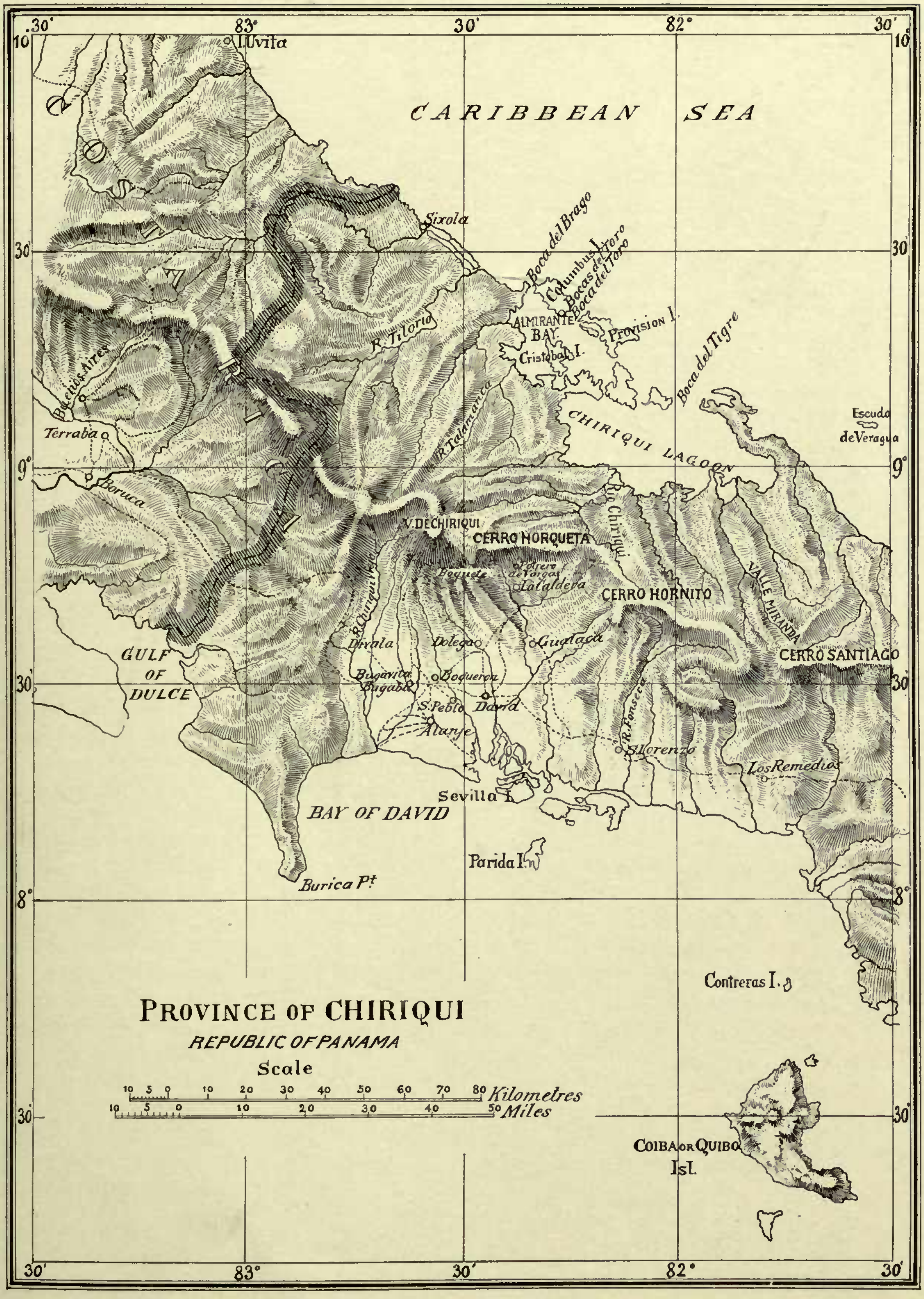
[1] Dr. C. H. Berendt. Geographical distribution of the ancient Central American civilization. Jour. Amer. geogr. soc., VIII, 132, 1876.



PROVINCE OF CHIRIQUI

REPUBLIC OF PANAMA

Scale
10 5 0 10 20 30 40 50 60 70 80 Kilometres
10 5 0 10 20 30 40 50 Miles
30'
83°
30'
82°
30'
10°
9°
8°
CARIBBEAN SEA
I. Uvita
Sixola
Boca del Brago
Columbus I.
Bocas del Toro
Boca del Toro
Provision I.
ALMIRANTE BAY
Cristobal I.
Boca del Tigre
Escudo de Veragua
CHIRIQUI LAGOON
R. Tilorio
R. Talamanca
Buenos Aires
Terraba
Boruca
V. DE CHIRIQUI
CERRO HORQUETA
Rio Chiriqui
Boquete
Potrero de Vargas
Lalaldera
CERRO HORNITO
VALLE MIRANDA
CERRO SANTIAGO
R. Chiriqui
Divala
Dolega
Gualaca
Bugavita
Bugaba
Boqueron
S. Pablo
David
Alanje
R. Fonseca
S. Lorenzo
Los Remedios
GULF OF DULCE
BAY OF DAVID
Sevilla I.
Parida I.
Burica Pt.
Contreras I.
COIBA OR QUIBO Isl.

THE COLLECTIONS.

The Chiriquian antiquities belonging to Yale University number several thousand specimens. The choicest of these were collected from 1859–1866 by M. A. de Zeltner,[1] French Consul at Panama, whose good fortune it was to be living there at the time of the first discoveries. The major part of the collection, however, was made by Mr. J. A. McNiel a few years later. The de Zeltner collection was bought in 1872, after it had been shipped to Paris and a part of it already forwarded to Heidelberg, where de Zeltner was soon to go as his country's representative in the consular service. The purchase was made by Professor Othniel C. Marsh, who also bought the McNiel collection in 1878. These collections include gold objects, stone implements, metates, stools of stone and earthenware, and a series of pottery representing various kinds of ware and unsurpassed in the number of its rare and valuable specimens.

These treasures have been in storage for about thirty years, there being no facilities for their exhibition, and only recently have they been accessible for purposes of study. They form the central feature of one of the three principal collections given to the University by Professor Marsh in 1898, viz., the "Collection of American Archeology and Ethnology."[2]

Of the priority of stone art over ceramic art, there can be no question, and it is also generally admitted that the manufacture of pottery antedates a knowledge of the use of metals. In discussing the three classes of artifacts, therefore, it has been thought best to follow the foregoing sequence, although no attempt is here made to fix the relative age of individual specimens, which would presuppose a much more thorough knowledge of the various types of Chiriquian graves, as well as of the character of their contents and that of the surrounding soil. It may be worth while, however, to call attention to certain phylogenetic relations which are traceable, not only through the various groups of a given class, but which also bind the product of the stone worker to that of the potter and the artificer in metal.

That these phylogenetic ties lie between stone and pottery on the one hand and pottery and metal objects on the other, rather than between stone on the one hand and metal on the other, is significant as bearing on the general phylogenetic trend in the development of Chiriquian art as a whole. The subject will be discussed further in describing the various specimens in the three classes that best illustrate the influence of technique in one medium over that in another. It is also significant that these ties which bind the art of all three classes together are centered in the group of unpainted pottery, called by Holmes "terra cotta" or "biscuit" ware, a group which probably stands for an early stage in the development of Isthmian ceramic art. The question of the relative ages of the various groups of pottery will be taken up in more detail when treating of the "biscuit" ware, or armadillo ware as I prefer to call it.

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[1] Note sur les sépultures indiennes du département de Chiriqui (État de Panama), Panama, 1866.

[2] Yale alumni weekly, VII, Jan. 20, 1898.

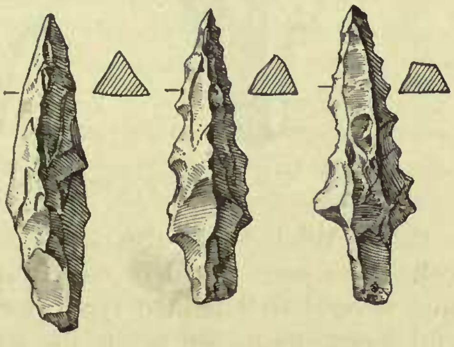
STONE.

With the exception of its architectural manifestations, which are relatively insignificant, the stone art of Chiriqui compares favorably with that of the regions either to the northwest or southeast. It includes arrow-points, spear-points, celts, polishing stones, pestles, metates or mealing stones, stools, images, ornaments, petroglyphs and sculptured columns.

McNiel states that stone axes and other implements were found in every locality visited—from Gualaca east of David to Divala on the west and El Banco and Jacú on the north. As to their mode of occurrence, he says: "I have not been able to discover any particular difference in the class and style of graves in which the stone implements were found. Having obtained them from every locality visited, I can say that the majority of those in my collection are from Bugavita. But as a large portion of the pottery is also from that locality, I have not thought the fact important. The three or four large stone axes of a different form are from the extreme easterly limit of my work, Gualaca. These were brought in to me by my assistant, with about the same number of cantaros (pottery vessels).

"The stone images, statuettes, etc., are less frequently found; and are generally found either on the surface, above the graves or a short distance below. As I have no practical knowledge of my own in regard to these, having at no time been present when any of those in my collection were found, I can only state from information, which I believe to be in the main reliable. My inquiries in that direction also elicited the reply that where stone images of any kind were found it was looked upon as indicating a rich grave in pottery and probably gold."

Arrow-points.—The distinguishing characters of Chiriquian arrow-points first attracted the attention of archeologists years ago. As early as 1862, Dr. Merritt[1] "spoke of the arrow-heads found by him in the Chiriqui graves differing from all others he had seen; those from Chiriqui being pyramidal, having four cutting edges converging to the point. Some of them appear to have been designed to set into the end of the shaft without fastening, in order to remain in the wound."



Figs. 1—3.—Arrow-points. 1/1

The fact is that these rudely shaped arrow-points are almost always triangular in section. The flat nuclear or inner surface, slightly concave longitudinally, is left untouched, while the other two surfaces are chipped irregularly, producing toothed edges, especially those bordering the nuclear surface (fig. 2). A few have a fourth surface roughly parallel to the inner surface, but narrower, and are therefore trapezoidal in section (fig. 3).

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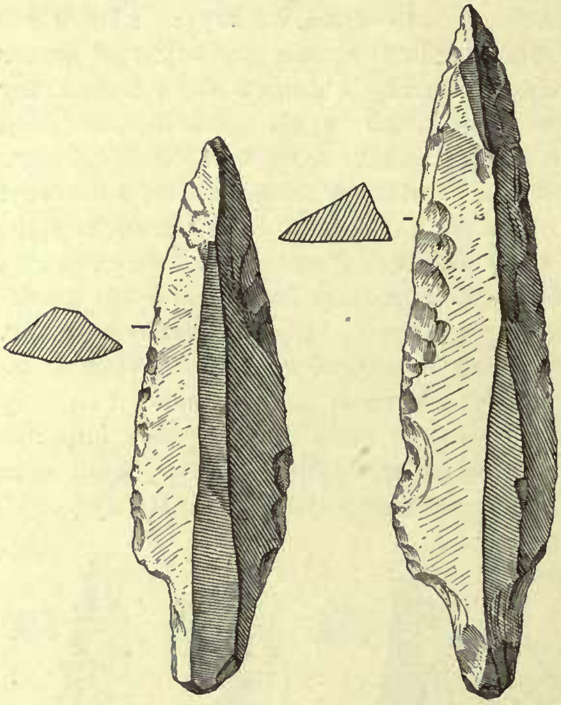
[1] Dr. J. King Merritt. Report of Amer. ethnol. soc. meeting. Hist. mag., VI, 154, 1862.

The stems are triangular in section and slope toward the base, lending weight to Dr. Merritt's supposition that some might have been so designed as to become free from the shaft and remain in the wound. The material is a flinty jasper.

The only specimen in the collection that looks like true flint is given in figure 1. It is lighter in color than the two arrow-points, and different in shape, there being no well-defined stem. It may have been a goldsmith's tool rather than an arrow-point. A similar specimen was figured by L. Simonin[1] as coming from the tomb of an ancient Chiriquian goldsmith. Traces of gold were left on its lateral margins, as if it had served as a touchstone. The grave was opened by M. J. Thévenet in 1859, who also found in it a celt similar to figure *c* (Pl. II), two polishing stones, etc. These were all said to have been of flint, which is probably an error, the possible exception being the one with traces of gold. One of the most interesting stone implements in the Yale collection is a sub-cubical pestle-like object, polished over its entire surface and showing almost everywhere traces of gold (see fig. 33).

Spear-points.—The implements that may be classed as spear-points are made of a velvet-black flinty quartz resembling basanite. In workmanship they are not unlike the arrow-points, the differences being chiefly dependent on the character of the materials employed and the size of the flakes. The edges also are not so serrated. The stem is insignificant in comparison with the length of the blade. The inner surface is often chipped at the point and for the length of the stem (figs. 4 and 5). The point is sometimes ground and polished.



Figs. 4, 5.—Spear-points. $^{2}/_{3}$

Celts.—While Chiriquian arrow-points and spear-heads are very few in number, celts have been found in comparatively large quantities. They may be grouped into several well-defined types, for the most part hatchets and chisels. The adze and gouge forms are practically unknown. The same may be said of the grooved celt, there being but one in the United States National Museum and one in the Yale Museum.

The same variety and homogeneity that characterize the ceramic art of Chiriqui are also stamped upon the stone art. It is almost wholly the product of a small compact culture area and an uninterrupted culture period. The workmen were limited to only a few varieties of stone, and these were not of a kind to encourage a high degree of development in the art of chipping. True flint and obsidian, for example, seem to have been practically unknown.

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[1] La vie souterraine ou les mines et les mineurs, 486, Paris (L. Hachette), 1867.

The technique included chipping, pecking, grinding and polishing. The collection of celts comprises specimens in various stages of development, from which the processes of working and the resultant shapes may be determined. These seem to vary in a measure with the character of the material. For example, a certain type of celt is usually made of a black fine-grained volcanic tufa, ranging in hardness from that of hornfels on the one hand to basanite or touchstone on the other. The implements of this group are always chipped and not pecked. On the other hand those made of silicified volcanic ash and of andesitic lava take other forms and are usually pecked and not chipped.

The chipped types of celt are shown in Plate II (figs. *a* and *h*). The comparatively slender and graceful shape in figure *a* is due entirely to chipping, the only polished areas being the facets that meet to form the edge. The materials of this group are the black fine-grained volcanic tufas resembling hornfels and basanite. The surface of the specimens is covered uniformly with a whitish patina. In figure *h* the polishing reaches almost the entire length of the blade and the two polished faces form each a single convex surface. Celts similar in shape to these were found by Hartman in the highland plains of Costa Rica, Province of Cartago.

Sometimes the shape is varied by the production of three facets, the bevels that produce the edge, however, never reaching more than about half-way to the base (fig. *c*). A specimen resembling this was described by Simonin[1] as being found in the grave of an ancient Chiriquian goldsmith.

Early stages in the pecked type of implement are reproduced in figures *d* and *e*. The larger looks as if it had been made from an oblong, flattened, water-worn pebble, tapering toward one end. The latter becomes the base or pole (called by Sir John Evans, "butt-end"). The polishing extends backward along a median line to the very tip of the pole, a feature which distinguishes the pecked type from the polished type. The lateral facets are left unpolished. In the smaller specimen the polished bevels at the edge extend but a short distance toward the pole, a single exception proving the rule.

Figure *f* is a typical example. The lines are all gracefully wrought out, those bounding the polished facets converging artistically and extending from the corners of the cutting edge to the very tip of the pole. The lateral facets are coarsely ground. These also are sometimes polished as in figure *g*, which represents a high degree of artistic skill and finish.

Two variants from the general type are given in figures *b* and *i*. In the former there is a marked constriction in the blade immediately above the corners of the edge. In the latter the edge is comparatively straight and long. The length, however, has been somewhat reduced by polishing off the corners.

Figure 6 represents a class with rounded, even cylindrical, section and thick blunt pole. Specimens of this group seem to have been shaped by pecking, grinding and polishing. In some examples the entire surface is polished. The material is generally a compact volcanic tufa, reddish to black in color.

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[1] Op. cit., fig. 139.

There is a small group of chipped and polished implements including alike the largest and smallest celts in the collection. The former are made of andesitic lava and all come from Gualaca. One of the handsomest is reproduced in figure 7.

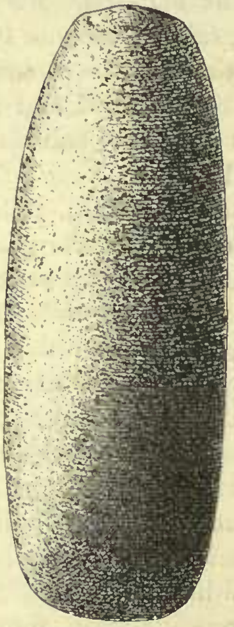

Fig. 6.

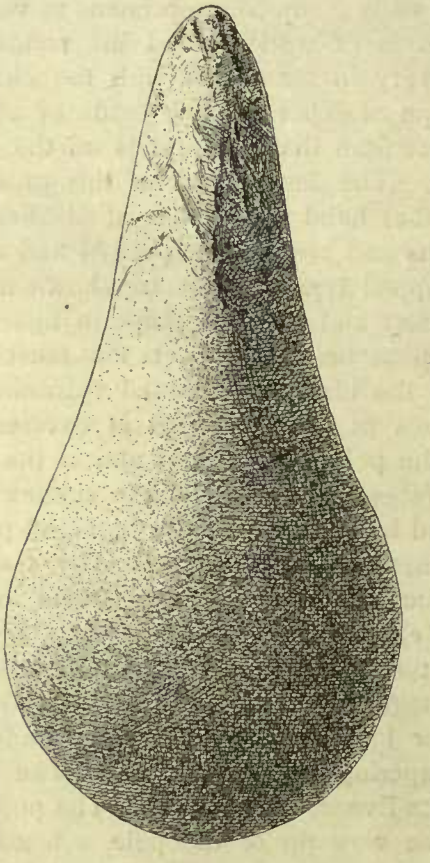

Fig. 6.—Cylindrical celt with thick blunt pole. 1/2

Fig. 7.—Large polished celt with pointed chipped pole; from Gualaca. 1/2

Fig. 7.

Its length is 23.2 centimeters and greatest breadth 11.5 centimeters. The broad edge forms a sweeping curve, the ends of which are carried along the lateral margins more than half the length of the implement. The pointed pole is not polished. This type is not constant; for as the lateral margins become straighter, the curve of the edge flattens somewhat, tending to produce more or less triangular outlines. The diminutive celts of which figure 8 is an example take the latter form. They are chipped from a dark compact material, probably silicified ash or tuff.

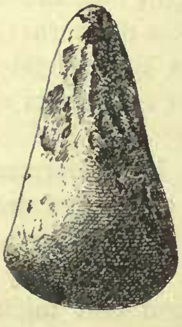

Fig. 8.—Diminutive triangular celt with chipped pole. 3/4

Chisels, which are relatively rare, are characterized by being broadest at the base and tapering gradually to the edge. The materials used are porphyritic andesite, tuff, and a black volcanic tufa resembling hornfels and basanite.

In figure 9, the base or pole is chipped only. The blade is finely polished and faceted so as to produce an octagonal section. The faceting of the lateral margins is of rare occurrence among Chiriquian stone implements. Of similar workmanship is the chisel shown in figure 10, except that the marginal facets are more pronounced and the bevel at the edge is not continued to form a median facet. This specimen, therefore, is hexagonal in section.

A handsome implement deviating in form from both of the foregoing is given in figure 11. A distinct shoulder separates the shapely, but unpolished, pointed pole from the polished cylindrical blade. The only facets are the bevels at the edge. These tools compare favorably with those of the same kind found in any part of the world.

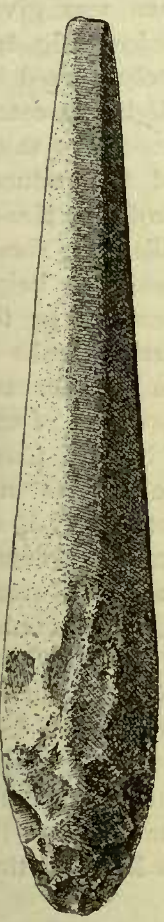
Fig. 9.

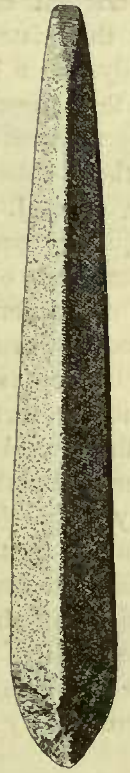
Fig. 10.

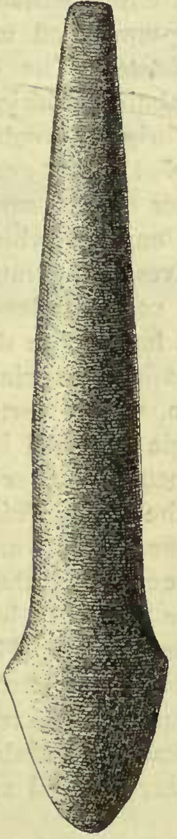
Fig. 11.

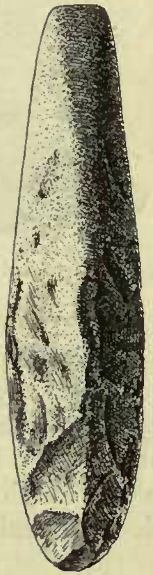
Fig. 12.

Fig. 9.—Octagonal celt with polished and faceted blade and chipped pole. $^{2}/_{3}$

Fig. 10.—Polished hexagonal chisel with chipped base. $^{2}/_{3}$

Fig. 11.—Polished cylindrical celt with distinct shoulder. $^{2}/_{3}$

Fig. 12.—Polished and chipped chisel. $^{2}/_{3}$

Some of the chisels are made of the same material as the hatchets reproduced in figures *a*, *h* and *c* (Pl. II), a black fine-grained volcanic tufa weathering white on the surface. Figure 12 is an example. Its lateral margins are not faceted and the relative shortness of the blade may be due to repeated resharpening of the edge.

The only grooved celt in the collection is reproduced in figure 13. It is of pale greenish gray quartzite. The groove is continuous, but shallow, and very near the base of the implement. Holmes figures a single grooved celt from Chiriqui, which is, however, different in type from this one. Both may have been importations.

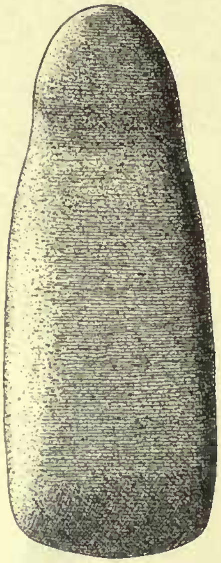

Fig. 13.—Grooved celt. $^2/_3$

Polishing Stones.—The uses of the potter's polishing stone are well known. For such purposes preference was given to pebbles of jasper (figs. 14 and 15) and chalcedony (fig. 16). The entire surface of some stones is completely altered by long-continued wear, while others are only slightly faceted.

Metates.—The traffic in ancient mealing stones by those inhabiting Chiriqui during the historic period has reduced the original number materially. In a letter to Professor Marsh, McNiel leads one to infer that these hand-mills were found either on the surface above the graves or immediately below the surface, which made their subsequent removal by the natives comparatively easy. Dr. J. King Merritt speaks of the corn-grinders as "frequently occurring in the huacas." We have more definite knowledge of the disposition of metates in the ancient graves of the peninsula of Nicoya, Costa Rica, where Hartman[1] found as many as three metates in a single bunched burial. In two cases the metate was placed immediately over a skull, thus protecting it from the pressure of the soil. This was in the burial ground at Las Guacas, where as many as two thousand metates were found, a number far exceeding that from any single locality in Panama.

Chiriquian metates are not only less numerous than those of Nicoya, but are also distinctly different in aspect. They are made to assume animal forms, i. e., each specimen represents a complete zoömorphic unit, the subject chosen being the jaguar. In these respects they resemble the metates of the ancient Guëtares culture of the Costa Rican highlands. On the other hand the metates of the Nicoyan peninsula are three-legged and are more nearly related to Mexican than

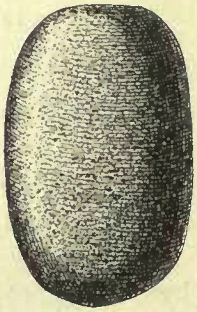

Fig. 14.

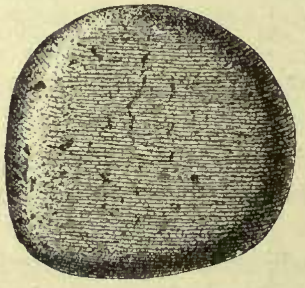

Fig. 15.

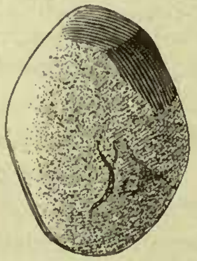

Fig. 16.

Figs. 14, 15.—Jasper polishing stones. $^3/_4$

Fig. 16.—Chalcedony polishing stone. $^3/_4$

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[1] C. V. Hartman. Archeological researches on the Pacific coast of Costa Rica. Mem. Carnegie museum, III, no. 1, 16 and Pl. XLVII, 1907.

Chiriquian culture. While many of these are richly ornamented with biomorphic motives, the specimen as a whole is not a complete zoömorphic unit. The shape of the plate is also different, being flat in the direction of the transverse diameter and concave longitudinally. It is also approximately rectangular in outline.

The metates of Chiriqui are made of a volcanic rock, chiefly andesitic lava. The diversity of form and finish led Holmes to suggest that the metates of Chiriqui might "represent distinct peoples or different grades of culture." Nothing could be more homogeneous than the large group representing the jaguar. That this is genetically related to the more primitive types, there can be little question.

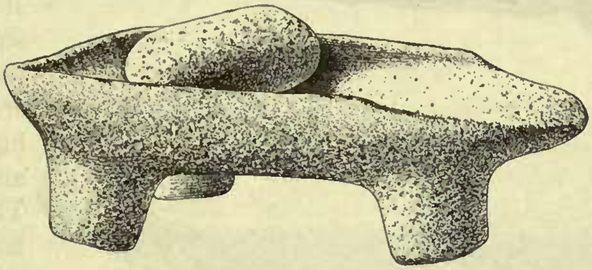

Fig. 17.—Metate with three legs, and hand stone. 1/4

The simplest kind of mealing stone is a flattened river boulder such as is still in use among the Talamanca Indians of Costa Rica and Chiriqui. In order to lessen the weight of the metate and render it more easily transportable, as much as possible of the base was removed. This was accomplished in two ways, viz., (1) by hollowing out the base and reducing its external dimensions; and (2) by cutting away all but three points of contact—the smallest number that will give stability. From the former were developed not only the zoömorphic types of metate, but also the so-called stools. The tripod type was not further elaborated in Chiriqui, but reached a high state of development in the province of Nicoya, Costa Rica. Only two examples of this type are illustrated. The rubbing surface of one of these (fig. 17) is an elongated oval and concave in the direction of both its length and breadth. The rim is chipped away at the end over the unpaired leg. One of the sub-cylindrical rubbing stones exactly fits this metate. Both are of the same material, but unfortunately the collector's notes do not reveal whether they were found together. The grinding surface of the other three-legged metate, figure 18, is quite different in shape, being concave in the direction of its length only and flat transversely, thus belonging very distinctly to the Nicoyan type. A rim proper does not exist, but is suggested by an incised line near the margin. The lateral margins are slightly concave, while the margins at the ends are markedly convex. The under surface is left in the rough, and the three legs are very short. This specimen is from Gualaca.

The prototype of practically all the Chiriquian forms of metate as well as of stool is to be found in figure 19. The shape of the top is intermediate between oblong and oval. The dishing or hollowing out is very slight and the rim low. The base is cut away on all sides and deeply excavated in the bottom, leaving the dish-shaped plate to rest on a hollow stand that is somewhat larger at the bottom than at the top.

The hollow stand could be made still lighter by cutting windows in its sides and ends. This is what is done in figure 20, which represents a metate of nearly the same size and shape as the foregoing. The outlines are a little more nearly rectangular. This is particularly true of the stand, which is also smaller at the bottom than at the top. There are eight large openings, three on a side and one at either end. The plate at the top has a low rim and is thick enough at the margins to admit of a peripheral incised ornament, consisting of two parallel horizontal lines connected at short intervals by transverse lines. We have in this metate all the essential constructional features to be found in the so-called stools, except that the latter have a circular top and stand instead of oval to rectangular ones.

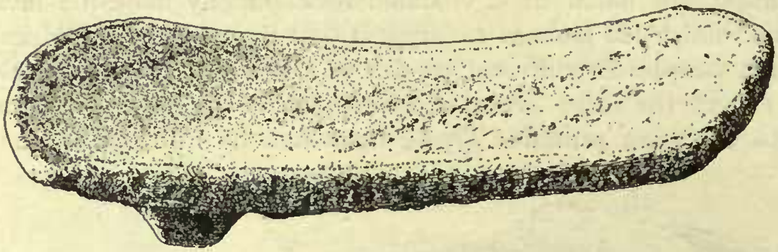
Fig. 18.

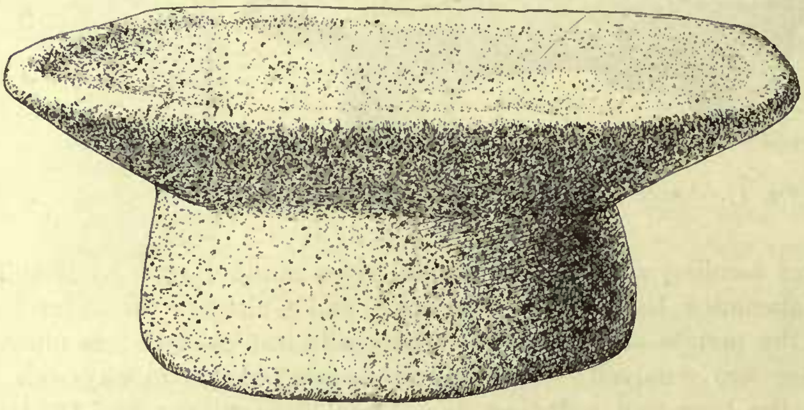
Fig. 19.

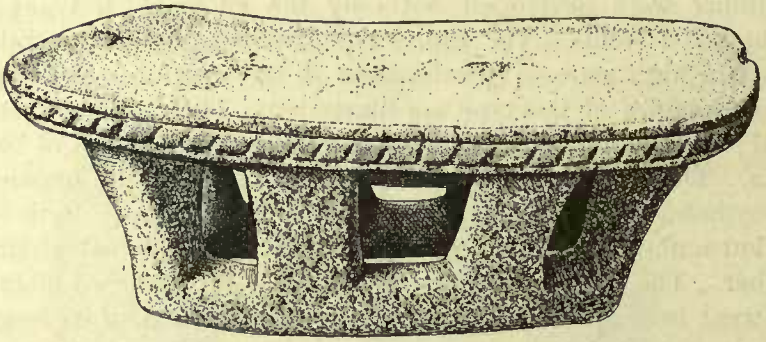
Fig. 20.

Fig. 18.—Three-legged metate of the Nicoyan type; from Gualaca. $^1/_4$
Fig. 19.—Prototype of Chiriquian metate. $^1/_4$
Fig. 20.—Metate with openings in the hollow stand. $^1/_4$

The metate shown in figure 21 is the gift of Mr. Edwin Lamson of Summit, New Jersey. It resembles the preceding in its roughly rectangular top and its sloping base. But the latter is hollow and entirely cut away at the ends, so that it does not present a continuous contact support. The sides are decorated with incised panels. The design is a faulted meander with branching incised lines filling the angular spaces. This metate and one of the pottery stools (see Pl. XLVI, fig. *a*) form a connecting link between mealing stones on the one hand and stools on the other.

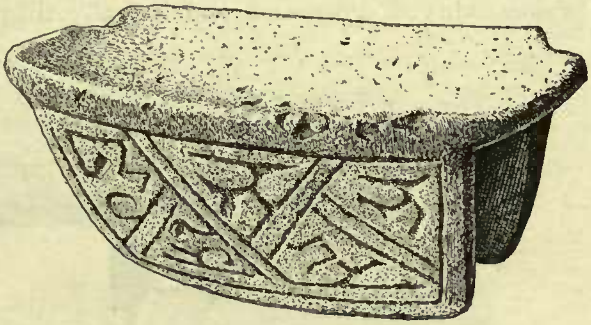

Fig. 21.

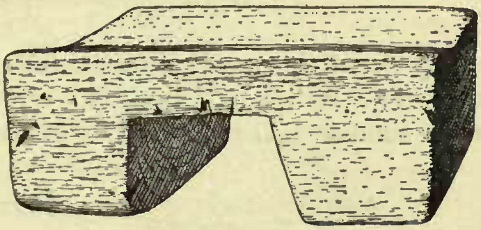

Fig. 22.

Fig. 21.—Metate with base open at the ends, the sides being decorated with incised panels. $^1/_3$

Fig. 22.—Modern wooden seat used by the Indians of Chiriqui. $^1/_3$

In the Keith collection may be seen two stone metates from Mercedes, Costa Rica, like the Lamson specimen in shape, only they are not incised on the sides. The wooden stools or seats in use among the present-day Indians of Chiriqui have approximately the same shape, as may be seen by consulting figure 22. Dr. J. Walter Fewkes describes a remarkable clay figurine from Santo Domingo that is seated on a metate-shaped clay stool.[1]

By cutting a block from the center of each side of the hollow base, as well as from both ends, the four-legged type of metate is produced as seen in figure 23. Animal heads are placed at each end to increase the zoömorphic effect. In the present instance eight diminutive heads are added, none of them projecting beyond the margin of the plate.

A somewhat similar specimen is reproduced in figure 24. The in-sloping legs are more highly finished. Each pair represents the forelegs of an animal. The head going with one pair is that of the jaguar; the other looks more like that of a mastiff with overhanging upper lips. The outer surface of the legs and the margin of the plate are decorated with incised patterns. The top of the plate is considerably worn, the wear extending to the low rim, particularly at the ends.

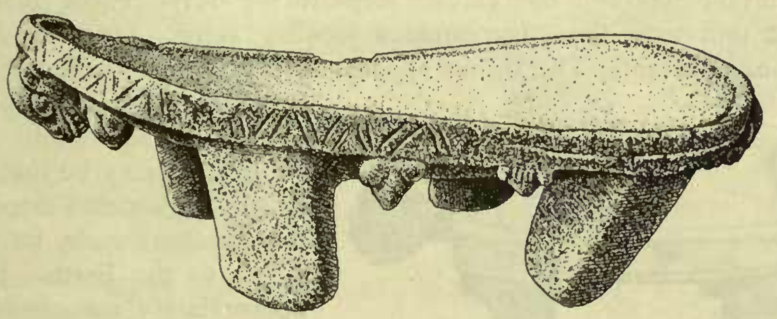

Fig. 23.—Metate of the four-legged type, ornamented with ten animal heads attached to the margin of the plate. $^1/_4$

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[1] Twenty-fifth ann. rept., Bur. Amer. ethnol., Pl. LXXXII, 1903–04.

A single zoömorphic unit is represented in figure 25. The head is clumsy, not the typical jaguar head, probably that of some canine. The tail, which is broken, curved downward and laterally till it joined the left leg at the knee. The outer surface of the legs is cross-hatched with rather deep incisions, as was also the tail. The margins of the plate representing the animal body are marked in a similar manner. There is a pair of bands in relief at each knee.

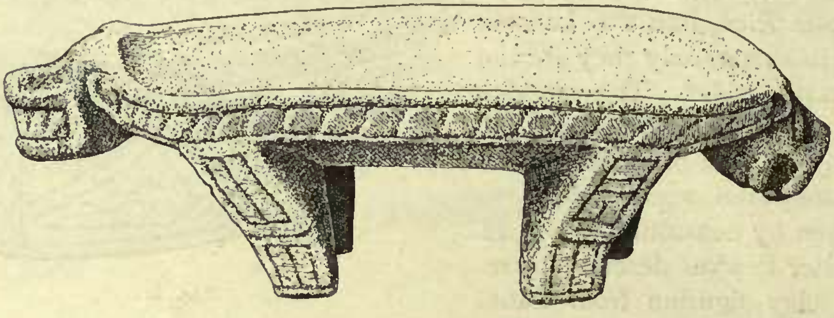

Fig. 24.—Metate representing anterior half of two animals. 1/4

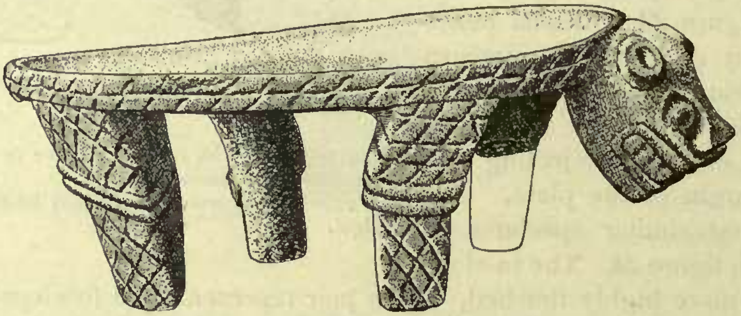

Fig. 25.—Metate representing a single zoömorphic unit. 1/5

We have now followed the various steps in the development of the complete zoömorphic unit from the commonplace mealing stone. Once established, this unit becomes constant. The jaguar appears to be chosen to the exclusion of all other forms. It would be interesting to know the reasons for such a choice. It may be that, as in Mexico, the jaguar was esteemed one of the primeval gods, its name being given to the Earth. It would be appropriately associated, therefore, with the sources from which the grain and nuts come. The skill with which the majestic bearing of this animal is rendered borders on the marvelous. The hand of the sculptor was guided not only by artistic skill but also by reverence for the subject.

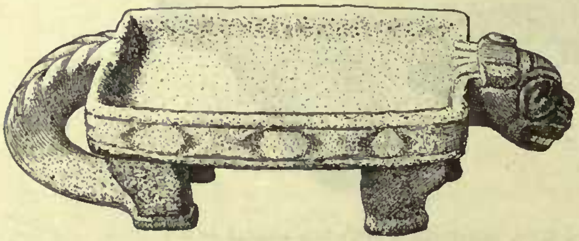

Fig. 26.—Jaguar metate with rectangular top. 1/8

Among the jaguar metates there are two types of mealing plate; (1) the rectangular and (2) the oval. The latter far outnumber the former. An example of the rectangular top is given in figure 26, where the borders are flat and ornamented with lozenge-shaped incisions. The top is hollowed out, thus leaving a comparatively high rim on all sides. Within are red and yellow stains as if the metate had been used as a mortar for mixing paints. The few specimens noted of this type have a longitudinal furrow in the tail, with slanting lateral incisions, as if to indicate the parting of the hair.

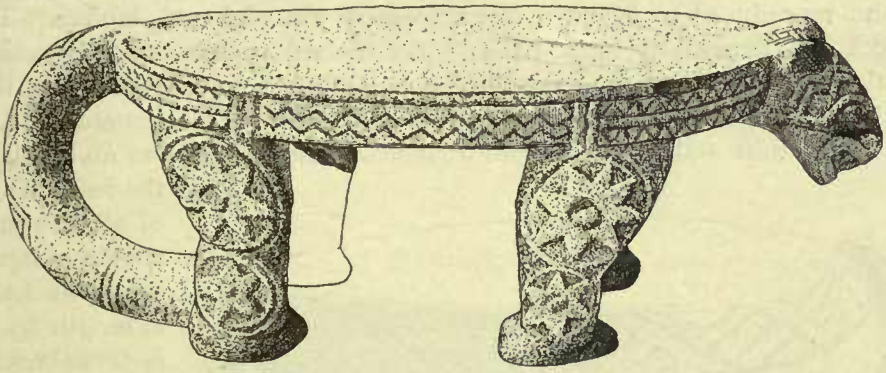

Fig. 27.—Jaguar metate the legs of which are decorated with stars in champlevé. 1/4

Some new decorative elements are introduced in figure 27. On the outer surface of each leg are from one to two stars in champlevé. The number of points to the star varies from six to nine. Each star is enclosed in a circle. This motive does not occur on any other metate in the collection. The guilloche pattern on the head and tail, however, is characteristic of both Chiriquian and Costa Rican metates, it and the lozenge-shaped design very cleverly representing the rosette markings of the jaguar. The low rim of the mealing plate has been almost ground away. The neck of the jaguar is very short, bringing the ears so close to the rim of the plate that they, too, are ground at the tips. One of the rubbing stones (fig. 31) fits this metate perfectly.

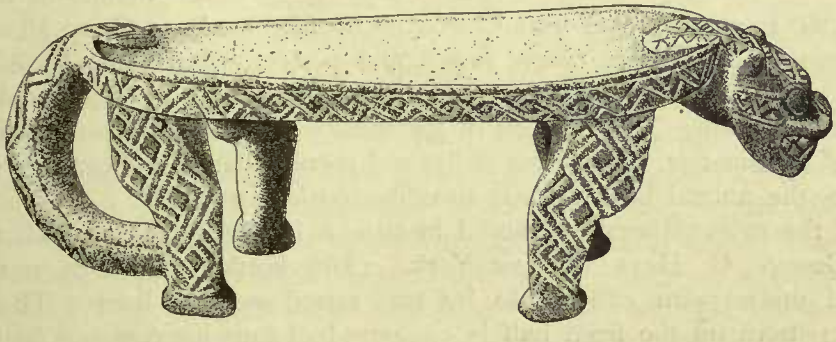

Fig. 28.—Jaguar metate with guilloche ornamentation. 1/4

A more characteristic jaguar metate is illustrated in figure 28. The border of the oval plate is plain, with the exception of two parallel horizontal incised lines. Elsewhere the markings of the jaguar coat are indicated by somewhat involved guilloches. These are confined to the outer more easily visible surfaces, as in nature. The joints and muscles of the legs are worked out in a somewhat conventional, though effective fashion. The neck and root of the tail encroach upon the mealing surface of the plate. The muzzle of the jaguar is relatively short and the jaws are wide open, a characteristic feature of all representations of the jaguar, whether in stone, clay, or gold. The border of the plate, as well as the head, legs and tail, are decorated with guilloches.

The finest and largest Chiriquian metates are grouped together in Plate III. The one reproduced in figure *a* is particularly graceful and lifelike. The head and neck are beautifully modeled, and the incised patterns on legs and tail are original. The other two are exactly of a height (37 ^{cm}). Figure *b* has the wider plate, being but little longer than broad. Contrary to the general rule, the tail is relatively short and is not carried downward and laterally to unite with one of the feet. The largest of all the metates is shown in figure *c*. It measures 1.17 meters in length by one-half meter in breadth. The legs and tail are plain, but the borders of the plate are incised as is also the forehead. The two rows of teeth and the overlapping of the canines are distinctly shown.

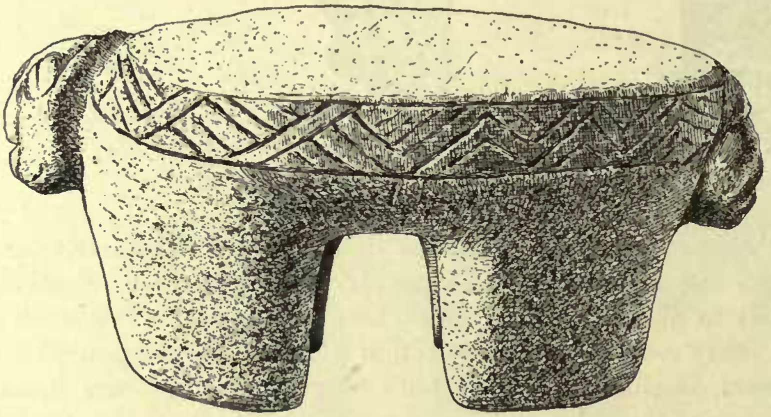

Fig. 29.—Metate with animal head at either end. 1/2

There is a small metate in the collection (fig. 29) resembling one from Chircot in the highlands of Costa Rica, figured by Hartman. The plate is nearly round and perfectly flat, with incised borders. There is an animal head at either end. The legs are short, thick and roughly triangular in section. The smallest of the metates is given in figure 30, its length being 16.5 centimeters. The plate is flat and rectangular, the short legs are round in section, the animal head is only roughly blocked out.

One of the most elaborately carved metates is in the collection (cat. no. 8250) of Mr. George G. Heye of New York. The border, which is not faceted, is divided midway on either side by two raised vertical lines. The angular guilloche pattern on the front half is composed of four intertwining bands, while that on the rear half consists of only two. A similar pattern is carried down the foreleg, while the hindleg is ornamented with a series of squares which resemble still more closely the ocellated markings of the jaguar.

Much pains was spent on the muscles and joints of the legs. The toes are indicated and even the pads on the soles of the feet are carefully worked out. The incised design on the top of the head is a marked variation from the usual, the central feature being a rosette; surrounding this is a series of raised triangles.

The same motive repeated, except that the triangles point outward, is half cut away by the deep dishing of the mealing plate. The bottom of the latter is quite concave, as might be expected from the rather highly convex ventral curve; and is highly polished, particularly in the middle. It is also stained black, the stains reaching nearly to the top of the high rim. The tail has two deep longitudinal grooves, the sides of which are ornamented with rows of triangles in relief, their bases meeting at the bottom of each groove. There is also a row of these triangles on either side of the tail. The teeth are faithfully rendered, the artist taking care to make the lower canines close in in front of the upper, as is the case in nature. This specimen was collected by Mr. F. D. Utley in the St. Andres mountains, near Bugavita. He obtained from the same locality a very handsome jaguar metate similar to figure 28, the body, however, being relatively longer and flatter.

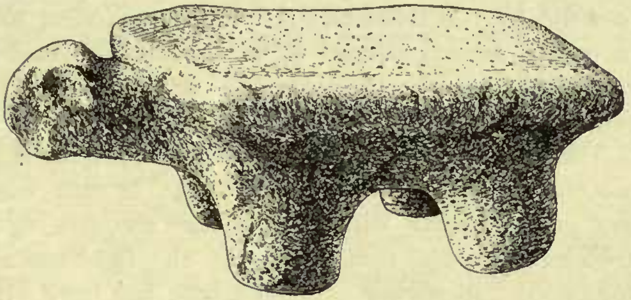
Fig. 30.—Small crudely shaped metate with rectangular plate. 1/2

The Heye collection includes a large metate similar to figure 24, except that the heads at either end are much flattened and the short sloping legs are perfectly plain. Of his Costa Rican metates, one has been figured by Hartman.[1] Two others are worthy of special mention. One of these (cat. no. 9622) is very similar to the ordinary Chiriquian jaguar metate; by the addition of the head at one end and the lower extremities from the pubic arch downward at the other, the plate is converted into the body of a human female facing upward. The human legs are curved downward and laterally till they unite with the metate legs exactly as if they were a pair of jaguar tails instead. The other metate (cat. no. 1872) with a plain rectangular plate and high rim and flat bottom is supported on the backs of two jaguars, each with the head turned so as to face outward and with nose on the ground. The tail is curved upward so as to take some of the load. Each jaguar is represented with a single foreleg and hindleg.

Rubbing or Hand Stones.—Very little general interest attaches to the comparatively insignificant upper millstones, which accounts in part, at least, for the relatively small number to be found in the collections. According to Hartman, the metates of Las Guacas far outnumbered the rubbing stones. During his "excavations on the spot, where about fifty complete metates were exhumed, not a single complete rubbing stone was discovered. Only a couple of small fragments were brought to light." In his previous excavations at Las Casitas, however, he did find "las manos" with several metates. The characteristic Nicoyan grinding stone was sub-cylindrical, "and so much longer than the breadth of the metate that the hands of the women when grinding could comfortably grasp both ends of the grinder on either side." This was made possible because the metate's grinding surface was flat in the transverse direction and not bounded by a raised rim.

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[1] C. V. Hartman. Archeol. researches on the Pacific coast of Costa Rica. Mem. Carnegie museum, III, no. 1, figs. 64 and 65, 1907.

The Chiriquian grinding stone had to fit a very different sort of grinding surface — one concave in both directions and bounded by a low rim. The upper stone, therefore, is relatively short. An example is reproduced on its metate (see fig. 17). It resembles a flattened cylinder, rounded at the ends. Another type is nearly rectangular in section, with flattened ends. The stone reproduced in figure 31 is a good example. It fits one of the metates in the collection (see fig. 27), but may not have been found with it.

There is a single specimen that would seem to be better adapted for use in a mortar than on a metate (fig. 32). It may have served as a grinding stone for the small metates with high square rim (see fig. 26) or the so-called stone stools with circular tops (see Pl. IV, fig. *e*). In shape it may be compared to an inverted toadstool. A similar type of pestle has been found in southern Indiana and Ohio, as well as on the northwest coast of America.

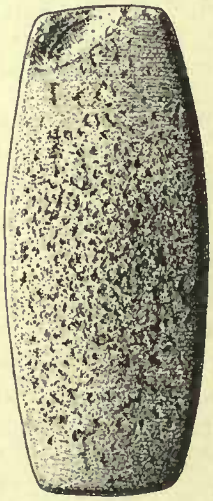

Fig. 31.

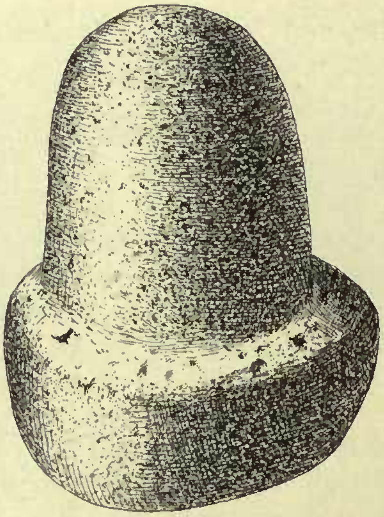

Fig. 32.

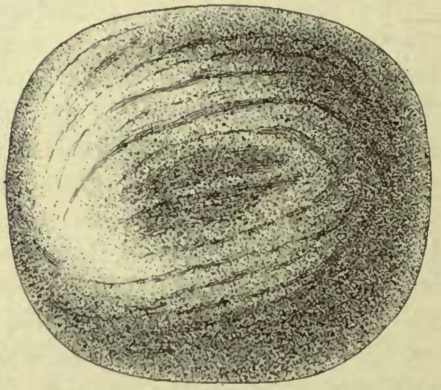

Fig. 33.

Fig. 31.—Rectangular rubbing stone. $^{1}/_{3}$
Fig. 32.—Pestle. $^{2}/_{3}$

Fig. 33.—Sub-spherical pestle streaked with gold. $^{1}/_{2}$

A cylindrical hammer stone with tapering and battered ends should be mentioned. One of the most interesting stone implements of the collection is a sub-spherical pestle with polished surfaces and almost everywhere streaked with gold (fig. 33). De Zeltner, from whom the specimen was bought, believed it to have been used by the natives to reduce the gold to powder preliminary to the process of fusion. It was entered in his catalogue as a "pierre de porphyre, forme de boulet un peu équarré ayant servi de marteau d'or, on voit encore les traces du métal." This is the specimen referred to by Gabriel de Mortillet[1] as "ayant servi à triturer le métal afin d'en faciliter la fusion." The stone is of volcanic origin, probably a well-cemented ash or tuff.

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[1] Matériaux pour l'histoire primitive et philosophique de l'homme, IV, 65, 1868.

Stools.—There is a small group of stone carvings to which the names circular metates, mortars or stools might apply almost equally well. Their kinship to the metates has already been mentioned. If the sculptor were to begin with a block of stone whose length was greater than its breadth or thickness he would end with a metate. If on the other hand, all three dimensions of the original block were about equal, the final product would be the so-called stool. Both groups have a plate showing the effects of use. In either group this plate may be supported by a solid column, a hollow stand in the sides of which openings are cut, or by four legs. Even the guilloche ornament so common to the metates is also found on some of the stools. The latter might well have served as seats, in which case continuous use would have smoothed the surface of the plate. While the wear on the stools is unmistakable, it is not quite so marked as on the metates.

In speculating on the use to which these objects were put it should be noted that similar stools were also made of clay. That the latter were used either as mortars or stools, is highly improbable. Holmes suggests that they may have been employed as supports for articles, such as vases or idols, or possibly as altars.

One difference between metates and stools, which may point to a difference in their use, will suggest itself by consulting the illustrations, viz., the association of the jaguar with the metate and that of the monkey and man with the stool. It is true that the heads suspended from the plate of one of the stools (see Pl. IV, fig. *b*) may possibly be referred to the jaguar. Holmes also describes a clay stool supported by "two rudely modeled ocelots and two monkey-like figures," but these are rare exceptions that prove the rule.

A series of five stools is given in Plate IV. One of the ruder forms is shown in figure *a*. The top is concave; its margin is decorated with nine animal heads. Four vertical openings are cut in the sides of the hollow bell-shaped support. A somewhat similar but more finished stool is reproduced in figure *b*. There is a more highly developed border to the plate, from which hang four jaguar-like heads. The peripheral ornamentation consists of a series of disconnected sigmoid scrolls for three-fourths of the way and of a simple guilloche pattern for one-fourth. In one of its stages the guilloche becomes a series of linked S's — a proof that it and the scroll have a common origin, as pointed out by Holmes. The sides of the hollow stand are nearly vertical, the spread being confined almost wholly to the continuous foot. A stool similar to the two foregoing, but of more finished workmanship and about three times as large, was found recently at Mercedes, Costa Rica, and is now in the Keith collection. The tallest of the seats (fig. *c*) is supported by four round legs; near the top of each there is a human head in relief. Just above these, encircling the plate, are thirty small animal heads.

The support for the seat becomes frankly zoömorphic in figure *d*. Four monkey-like figures stand on the slender basal ring, carrying the circular seat-plate on their heads and uplifted hands. While all four monkeys are equidistant from each other, they are also grouped in pairs by bringing the tips of the tails and the two adjacent elbows into contact, forming in this way a delicate and continuous tracery reaching half-way round the specimen. The same thing is repeated on the opposite side. The only lack of bilateral symmetry in the two halves is due to an accident that happened to the piece, presumably while it was still in the sculptor's hands. The right arm of one of the monkeys was broken off. The ingenuity with which the mutilation was concealed is seen in figure *d'*. All traces of the broken member were removed, even to the fingers holding the plate, and a necessarily abbreviated arm in relief was chiseled on the monkey's breast. A small crack in the plate where the hand previously rested may have been caused by the same fall or blow that carried away the outstretched arm. In other respects the piece is perfect. The margin of the plate is ornamented with scroll work. Stools similar to this one are found as far north as Mercedes, Costa Rica, from which place Mr. Minor C. Keith obtained the largest and finest specimen of the type in question I have ever seen.

The top in figure *e* is more like a mortar than a seat. It is dished to a depth of 3.7 centimeters and the inside is stained a dark color, as if it might have served to mix paints. The border is undecorated and curved instead of being flat, giving the whole the appearance of a shallow bowl. The latter is held by four monkeys, two upright and two, alternating, on their heads. One of these is tailless. This stool resembles the one, also from Chiriqui, exhibited by Captain J. M. Dow at a meeting of the American Ethnological Society in 1860, and described as "a circular dish about ten inches in diameter, with a rim supported by five human figures, standing on a narrow circular foot, all carved in stone and hollow, probably a chafing dish for sacrifice."[1]

One of the stone stools in the collection is so much like that represented in figure 13 of Holmes's work that it is not reproduced here. There is a similar example in the Heye collection (cat. no. 7054) with this difference that the base also carries a row of heads, inverted and smaller than the upper series.

Mr. Heye possesses another Chiriquian stool (cat. no. 8286) of sandstone, the hollow bell-shaped stand of which is curiously grooved as if it had been used as a polisher. The grooves are vertical and form two series; those of the upper series are the larger and are cut through the sides of the stand, while those of the lower group are smaller and do not go through. This piece was collected at Bugaba by Mr. Utley.

Images.—This class of objects is not very large, the majority being representations of the human form. Some of these are fine examples of the art of primitive sculpture; others are quite crude and unfinished in appearance. The original shape of the stone in figure 34 suggested the lines of some animal so that little was done save to round the body and neck and bring out the eyes and nose a trifle. A small image of a quadruped, with head raised and neck twisted halfway round, is seen in figure 35. It is without merit either in conception or execution. This cannot be said, however, of the next illustration (fig. 36), which may be described as representing a man or a monkey seated on the end of a cylindrical pestle and holding something to his mouth. The remarkable head-dress should be compared with that of the figure standing on one of the drum whistles (see fig. 280).

One of the large crude human images (fig. 37) has the appearance of being perched on the end of a stone pillar. The head is relatively large, the hair or head covering, represented both in relief and by means of parallel incised lines, running from front to back. At the vertex there is the stump of what once might have been a cylindrical shaft. One of the Chiriquian gold figurines in the Heye collection has a similar head-gear, only much taller, resembling the high Tlingit hats built up of superimposed disks (skil). The body is short. The arms are indicated in relief, being bent at the elbow and again at the wrist, with the hands against the sides of the face. The legs are drawn as if in a sitting posture and

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[1] Bull. Amer. ethnol. soc., I, 11, New York, 1860–61.

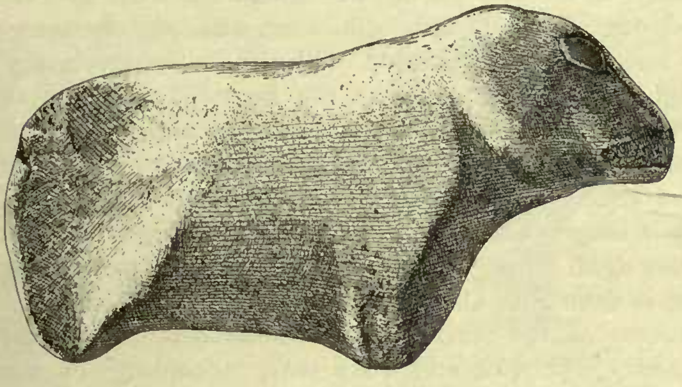

Fig. 34.—Image representing crude animal form. 1/3

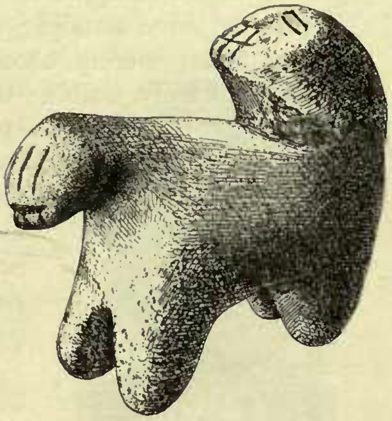

Fig. 35.—Small image of a quadruped. 2/1

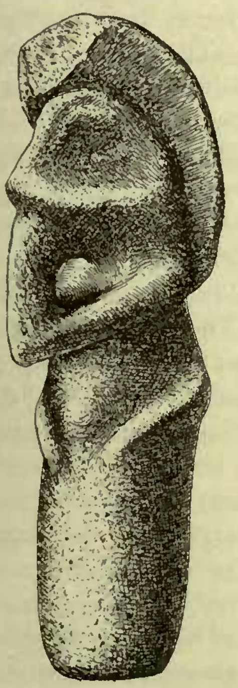

Fig. 36.

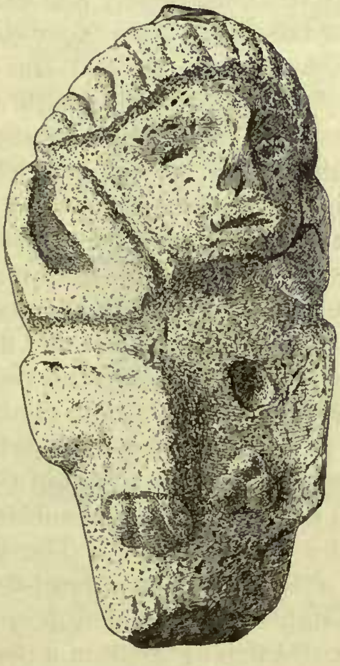

Fig. 37.

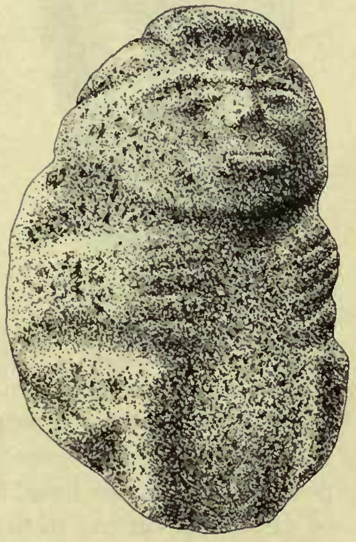

Fig. 38.

Fig. 36.—Image seated on cylindrical pestle; may represent man or monkey. 1/2
Fig. 37.—Large crude human image with "skil" ornament on the head; from Bugavita. 1/4
Fig. 38.—Crude human image; from Bugavita. 1/4

hug the pillar. Figure 38 is in the same general class, the differences being limited to minor details. Both these pieces are from Bugavita. One represents a male, the other a female.

There are three standing statues in the collection, one of which has the appearance of being merely blocked out (fig. 39), although some striking characteristics are already visible: the long nose, for instance, with the line of the bridge straight and continuous with the forehead; the top of the head, shaped like those of the clay figurines described on page 165; the loin-cloth and the short legs bent a little at the knee. The feet have not been cut apart. The body is long. The arms are in relief, the right hand is on the right breast and the left on the abdomen. This piece is from San Carlos.

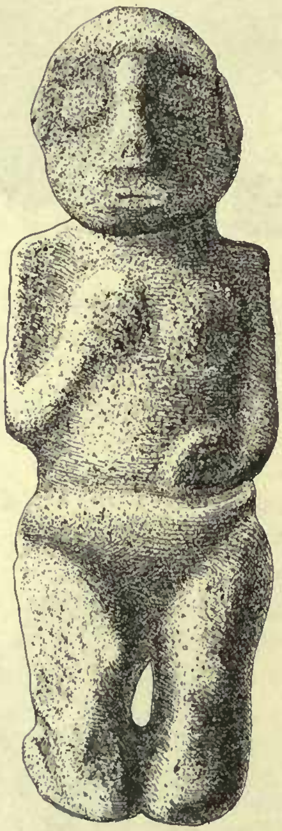
Fig. 39.—Rough statue in standing posture; from San Carlos. 1/8

Statues of the female sex predominate. The finest of these (figs. 40*a* and 40*b*) was, according to the finder from whom Professor Marsh bought it, "dug up in Chiriqui in 1871," and appropriately named the "Panama Venus." It undoubtedly does represent some familiar goddess, as there is in the collection another copy, not so elaborately finished, however, and less than half as tall as the one reproduced. The latter is 78.5 centimeters in height and stands securely on its own feet by virtue of their breadth and the projecting heels. The toes are indicated and the malleoli, both median and lateral, are prominent. The relatively short legs are slightly flexed at the knee. The incised ornament on the loin-cloth and the head-dress, the only articles of apparel, resembles somewhat that on the borders of the mealing stones already described. The body is round dorsally and flat ventrally, the flatness being emphasized by the square shoulders and stiff angular pose of the arms and hands. The loin-cloth is also flattened in front to be in keeping with the surfaces above. The neck, on the other hand, is round in front and flattened behind. The hair, represented in relief, reaches to the shoulders, suggesting the same style of treatment as seen in the clay figurines. The flatness of the crown of the head may be intended as a feature of the head-dress only. The face is pointed, the nose long and straight, and the mouth small. The two examples of "Panama Venus" in the Yale collection are both in a perfect state of preservation and resemble each other much more closely than either does the one figured by Holmes. All three however undoubtedly refer to the same personage.

In 1860 Mr. Totten and Mr. Center, engineers of the Panama Railroad Company, gave to the American Ethnological Society three stone statues of an unusual type, described in the record of the meeting[1] as "being about two feet high, cut from hard, dark-colored stone, and represent the human form and features distorted, and with legs bent. Two of them have square tapering pedestals, about two feet long, apparently designed to be stuck upright in the ground; and the third may have had a similar one. They are said to be the only objects of the kind found in the graves, though it has been reported that a number of such specimens are standing in one of the graveyards in a forest at Chiriqui." The three statues in question were from Panama, presumably the province of Chiriqui.

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[1] Hist. mag., IV, 144.

Ornaments.—Under this head are grouped beads and amulets. Both classes are rare in Chiriqui. Two large highly polished agate beads are reproduced in figures 41 and 42. The conical borings are made with precision at both ends and stop at the center, leaving only room for the passage of a slender thread. There is but a single green jasper bead (fig. 43) in the collection. A small agate pendant, with a vertical and a horizontal boring meeting at a point near the upper end, is seen in figure 44.

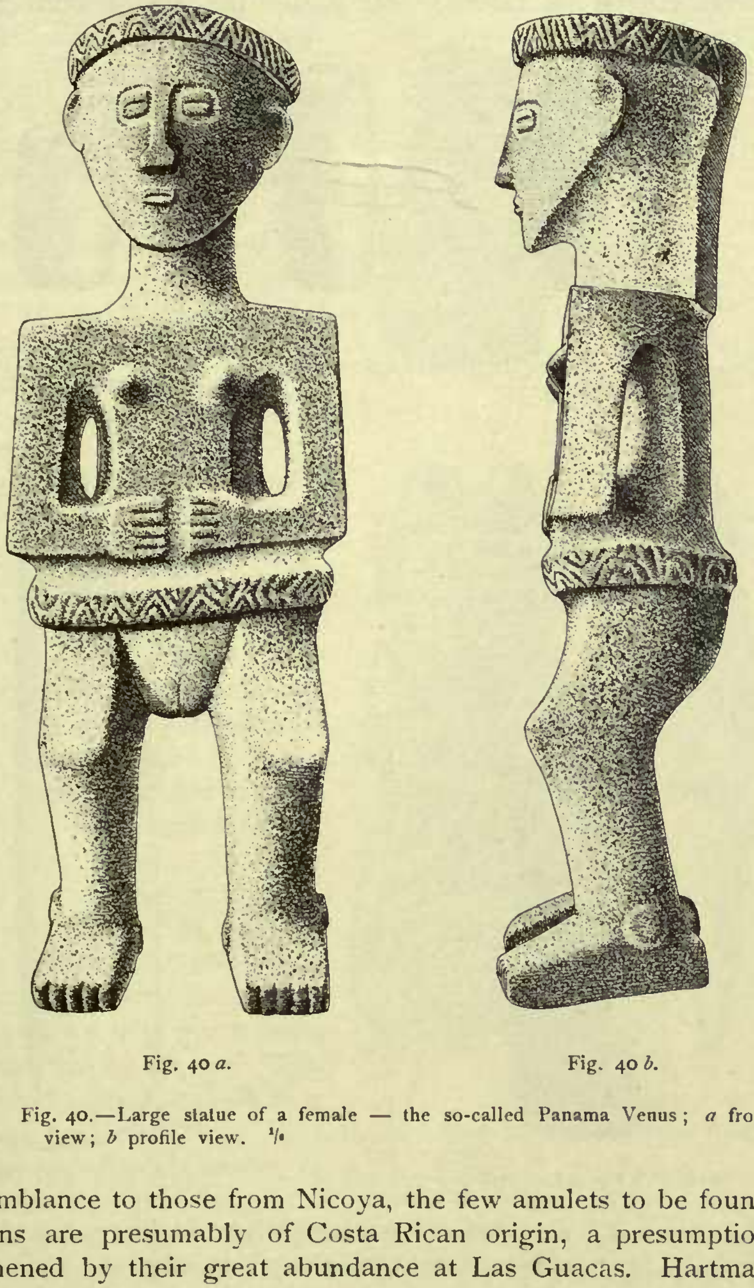

Fig. 40 *a*. Fig. 40 *b*.

Fig. 40.—Large statue of a female — the so-called Panama Venus; *a* front view; *b* profile view. 1/8

Because of their resemblance to those from Nicoya, the few amulets to be found in Chiriquian collections are presumably of Costa Rican origin, a presumption that is further strengthened by their great abundance at Las Guacas. Hartman states that "of all the objects found in the burial ground of Las Guacas none are more numerous than the amulets. Several thousand specimens have been unearthed. The commonest are those which have the shape of a celt or a grooved axe, which has been divided lengthwise, the convex side serving as the front."

This fits the description of the specimens found in Chiriqui. A plain amulet of this type is reproduced in figure 45. The flat back is perfectly plain, its median ridge or scar having been ground down and polished. The convex front has a central transverse groove. Near the top there is a single hole for suspension. The periphery is not faceted, that part of the margin forming the edge being sharper than the rest. The surfaces are everywhere highly polished. The material is a pale green jade, translucent only near the thin edges.

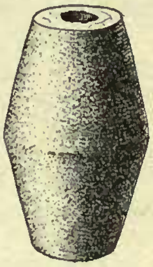
Fig. 41.

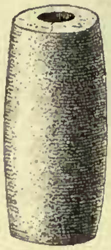
Fig. 42.

Figs. 41, 42.—Highly polished agate beads. 3/4

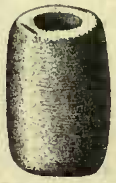
Fig. 43.

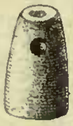
Fig. 44.

Fig. 43 —Green jasper bead. 1/1
Fig. 44.—Small agate pendant. 1/1

Fig. 45.—Highly polished amulet of pale green jade. 3/4
Fig. 46.—Large translucent amulet of jade; from Miravalles, Costa Rica. 1/2

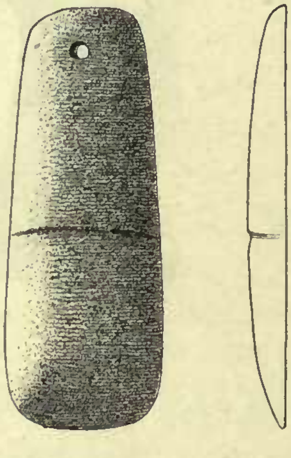
Fig. 45.

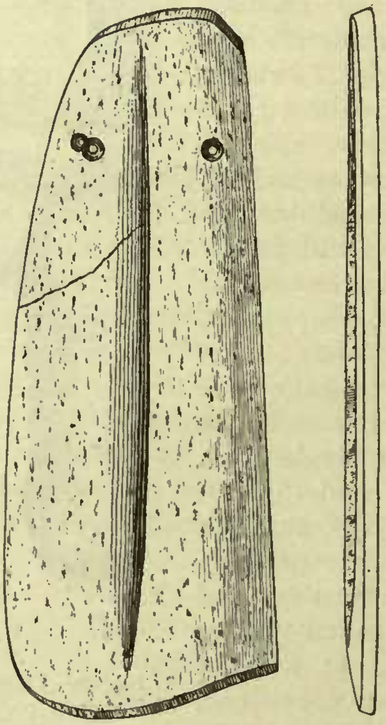
Fig. 46.

On some of the pieces described by Hartman there remained the median scar at the back, produced by sawing into the parent block from two sides until it was possible to pry loose the piece intended for the amulet. In the manufacture of these objects large pebbles were sawed lengthwise a number of times until only a thin central flat slab was left. Even this was perforated and also used as an amulet if the material was precious. There is one such slab in the Yale Museum. It is from Miravalles, Costa Rica, but is appropriately reproduced here (fig. 46). Its length is twenty centimeters. The thickness varies, one half being only two millimeters in thickness, and the other three, so that the piece is translucent at all points, as it is cut from a mass of exceptionally fine jade. The longitudinal scars produced by the failure of the saw-cuts on the opposite sides to meet in a common plane (and by the prying-loose process) are visible on both back and front. A slice was removed from one side of this slab. The other lateral margin and the ends seem to follow rather closely the contours of the original pebble or mass. Sections of the margin at each end show, in fact, the original crust, while the rest of the specimen is polished artificially. Near the smaller end are two holes bored from one side only, one of them being a second attempt at boring, after a hole had been started too close to the margin.

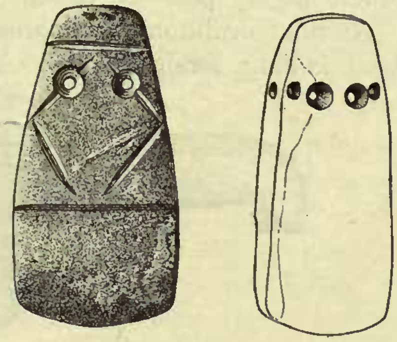

Fig. 47.

The small celt-shaped amulet shown in figure 47 serves as a connecting link between the preceding figure and the one that follows. It was a piece retained by the Lamson Brothers when they sold their (the McNiel) collections to Professor Marsh. It is flat on the back and has the groove across the front, but the lateral margins and pole are faceted and there are two holes for suspension instead of one. They also represent the eyes of the life form, the head of which is further suggested by the incised lines above and below. This may be either anthropomorphic or ornithomorphic. There are two additional holes made by boring diagonally into the lateral facets and the back, respectively. These may have been for the attachment of ornament or apparel. The material is dark green and opaque, probably a variety of hornstone or basanite.

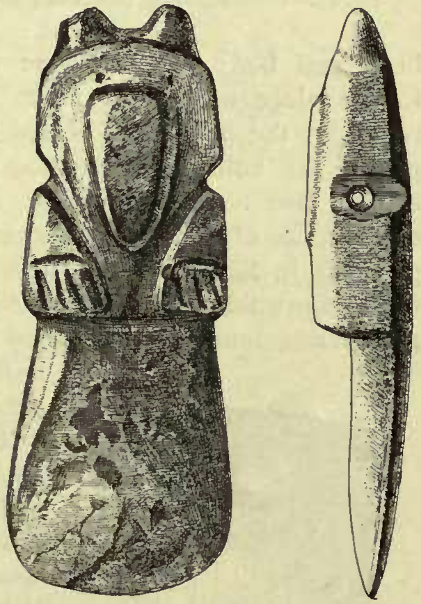

Fig. 48.

Fig. 47.—Small celt-shaped amulet. (Lamson collection.) 1/1

Fig. 48 —Ornithomorphic celt-shaped amulet of jade. 1/1

A fine ornithomorphic celt-shaped amulet of jade is shown in figure 48, one that compares favorably with the best specimens from Las Guacas figured by Hartman. It does not seem to have been formed by splitting a celt in two. The back is convex, as was also the front until its lower half was cut away to make the blade of the celt and the tail of the bird as well. Then comes the body of the bird with wings in relief folded on the breast. A transverse hole for suspension is bored through the constriction at the neck. The prominent beak is in low relief and reaches well down on the breast. The eyes are scarcely visible — two little shallow depressions sunk by boring. Above are the two ear-tufts so characteristic of the gold and clay parrots described in other chapters. If this resembles the stone amulets from Nicoya, it also suggests the gold amulets of Chiriqui, and may not be an importation. The surface is everywhere highly polished except at the edge.

Another ornithomorphic amulet, but not celt-shaped, is given in figure 49. The beak is long, straight and hooked at the end — evidently that of the parrot. The head and body combined are not so long as the beak, although more massive. In the place of ear-tufts, there is a prominence at the base of the beak. The region of the neck is indicated by a peripheral incision, at the level of which is placed the hole for suspension. The base of the tail is marked by a horizontal incised line across the back. The feet and toes project very little beyond the contour line of the body and resemble very closely the feet of the well-known gold parrots. In fact, the entire figure seems to have been inspired by the work of the Chiriquian goldsmith. On the other hand, it is so different from the bird forms among the amulets found at Las Guacas that to assume it to be of Nicoyan origin would be hazardous. The specimen is of the finest quality of green translucent jade and in perfect condition.

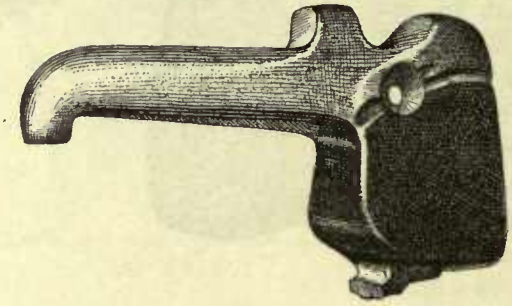

Fig. 49.—Ornithomorphic amulet of green translucent jade. 1/1

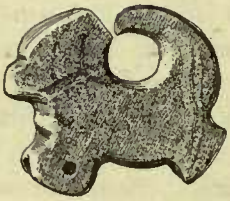

Fig. 50.—Zoömorphic amulet of agate. 3/4

The abundance of jade ornaments found at Las Guacas, together with "worked blocks of the crude stone," leads Hartman to conclude that the amulets were manufactured there and that a mine of the mineral may yet be discovered in the neighborhood. It is highly probable, therefore, that there was a common source of jade supply for the regions in question, and that it was in Costa Rica.

Figure 50 represents a zoömorphic amulet in a simple yet effective manner. It is a slab from an agate pebble. Shallow notches cut out of the periphery leave muzzle, forelegs and hindlegs, respectively; while the entire dorsal contour, from the back of the head to the tip of the tail, is produced by means of a large boring near the upper margin. Both forefeet are perforated for suspension.

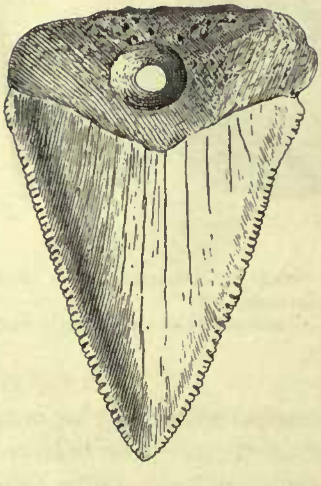

Fig. 51.—Amulet made from a shark's tooth; from Divala. (Lamson collection) 1/1

Chiriquian ornaments of stone are comparatively rare. Those of gold were relatively numerous. Ornaments of less durable materials, such as bone, teeth, shell, etc., may have been used. The historian Gonzalo Fernandez de Oviedo y Valdés, who visited Nicoya in 1529, says that the Indians wore necklaces of sea shells. Similar perishable ornaments may have been used by the prehistoric races of Nicoya, as well as of Chiriqui. In the Lamson collection there is a single shark's tooth (fig. 51), the neck of which is trimmed and perforated. It was found by McNiel in a grave at Divala and was evidently worn in the same fashion as were the celt-shaped amulets of stone.

Petroglyphs.—Seemann[1] speaks of finding in western Veraguas (Chiriqui) remains of a numerous tribe, which he calls Dorachos. These remains consist of "tombs, monuments and columns of different sizes, covered with fantastic figures, or representations of natural objects, differing entirely from either the hieroglyphics of Mexico or those of Central America." Seemann was perhaps the first (1848) to give a detailed description of a granite block at Caldera, north of David, known in the vicinity as *piedra pintal*, or painted stone. The sides and even the flat top of this huge boulder (or outcrop ?) are covered with incised figures. The characters are from a half to one inch deep except on the weather side, where they are nearly effaced, a proof of their great antiquity. The work is ascribed to the Dorachos. Seemann made a drawing of the *piedra pintal*, which was later reproduced by W. Bollaert.[2] Holmes published a sketch by McNiel of the southwest face (fig. 52), showing approximately the same number of glyphs as in Seemann's drawing. Tracings by M. A. L. Pinart are said to reveal at least forty glyphs on the same face.

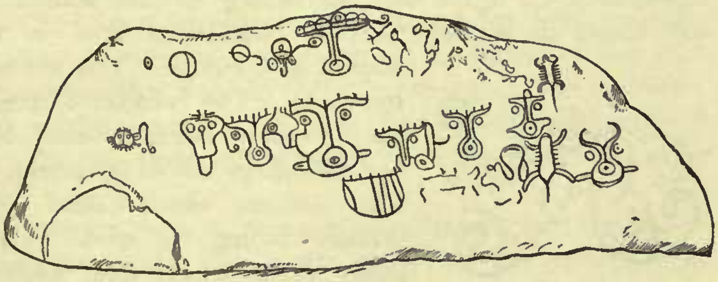
Fig. 52.—Southwest face of the *piedra pintal* or pictured rock at Caldera. (After Holmes.)

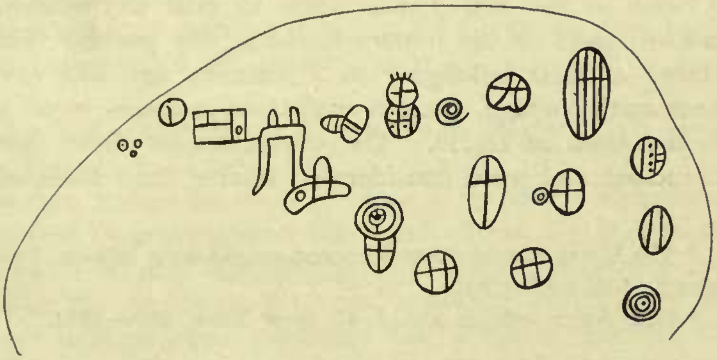
Fig. 53.—Northeast face of the *piedra pintal*, from a water-color drawing made by Gentil.

Seemann was struck by the similarity of the Chiriquian and certain Northumbrian and Scottish petroglyphs. Charles Rau,[3] however, was unable to discover any figures on the *piedra pintal* that are identical in shape with European stone sculptures, excepting concentric circles and a few carvings resembling wheels with four spokes. He very justly points out that simple devices like these, when found in different countries, are no proof of ethnic affinity or contact.

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[1] Berthold Seemann. Narrative of the voyage of H. M. S. Herald, I, 312, London, 1853.

[2] Antiquarian, ethnological and other researches in New Granada, etc., 30, London, 1860.

[3] Observations on cup-shaped and other lapidarian sculptures in the Old World and in America. U. S. geogr. and geol. surv. of the Rocky Mt. region. Contr. to Amer. eth., V, 69, 1881.

Dr. J. Walter Fewkes[1] notes the similarity between Porto Rican petroglyphs and those of Chiriqui. The chief motive on the southwest side of the *piedra pintal* seems to represent a front view of the human or other face. It is repeated with variations six or eight times. A motive not unlike this characterizes Porto Rican petroglyphs, and is also found in Colombia and Venezuela.

A water-color drawing of the northeast face of the *piedra pintal* was made by Gentil for Father Heyde. Through the kindness of Professor M. H. Saville of Columbia University I am able to reproduce a tracing of this sketch (fig. 53), showing its close agreement with Bollaert's statement that "the top and other sides have signs of a circular and oval form, crossed by lines."

Other Chiriquian petroglyphs have been noted by Mr. J. F. Bateman in a letter to the American Ethnological Society, accompanied by a tracing which is reproduced in figure 54. According to the letter: "The *hieroglyphic* enclosed was found on a large surface boulder of lava, in the parish of San Miguel, district of Chiriqui. The tracing is perfectly correct, two feet long. The boulder is irregular in shape, and appears once to have been covered with figures or *hieroglyphics*; but the others are so indistinct as to prohibit being copied. The outlines which I send you are on an angle of the boulder facing the west. The position of the rock is eight miles nearly due west of the mountain called *El Volcan,* which is said to have an altitude of thirteen thousand feet."[2]

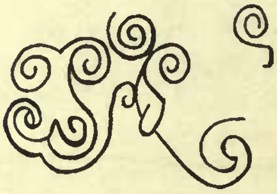
Fig. 54.—Tracing of a petroglyph. (After Bateman.)

None of the petroglyphs seem to bear any relation to the many decorative motives used on the pottery found in the graves. This fact suggests the probability of their belonging to a different age and civilization. At the time of Seemann's voyage, ancient sculptured columns were used for building purposes in the town of David. The characters on these, however, were raised instead of incised and were considerably smaller than those of the *piedra pintal.*

[1] The Aborigines of Porto Rico and neighboring islands. Twenty-fifth ann. rept., Bur. Amer. ethnol., 151, 1903–1904.

[2] Bull. Amer. ethnol. soc., I, 12, New York, 1860–1861.

POTTERY.

In the early stages of human culture, the association of ceramic art with stone art is well-nigh universal. Both stone and clay have archeological possibilities of a high order. They are alike almost indestructible. In the case of stone, the ingredients are already mixed and the firing is done by Nature's hand. It occurs, therefore, in a more utilizable and available state — one that even invites use, and was the first to appeal and yield to nascent human mentality.

The conditions which gave rise to the discovery of the uses of baked clay and the appreciation of its economic and artistic importance were very different from those surrounding the first race of tool-users. De Mortillet believed pottery to be an invention of the neolithic period; according to Rutot it dates back to the cavern epochs of the paleolithic period. When necessity knocks hard enough, the door of invention opens. The need of vessels must have been felt at a relatively early stage in the history of primitive man; and as the habits of the race became more and more sedentary, the fragility of clay vessels, their weakest point, counted less and less against them. The very fact that fictile products are not easily transportable adds to their usefulness as a criterion for locating culture areas.

Great as is the value of ceramics from a practical standpoint, the interest of the archeologist is centered rather in the rôle it has played in the development of art. The plasticity of clay is particularly well calculated to stimulate the imagination. It yields readily to any form that fancy may dictate. These forms, whether useful or ornamental, in themselves present surfaces that admit of further decoration by means of engravings or painted designs, thus bringing into play the great realm of art, from sculpture in the round and relief to engraving and painting.

The place of aboriginal American pottery could scarcely be better given than in the words of William H. Holmes:[1]

"It is hardly possible to find within the whole range of products of human handicraft a more attractive field of investigation than that offered by aboriginal American ceramics, and probably no one that affords such excellent opportunities for the study of early stages in the evolution of art and especially of the esthetic in art. The early ware of Mediterranean countries has a wider interest in many ways, but it does not cover the same ground. It represents mainly the level of the wheel, of pictorial art, and of writing, while American pottery is entirely below this level, and thus illustrates the substratum out of which the higher phases spring. But it should be noted that not merely the beginnings of the story are represented in the native work. The culture range is quite wide, and opportunities of tracing progress upward to the very verge of civilization are afforded. Between the groups of products belonging to the inferior tribes scattered over the continent from Point Barrow to Terra del Fuego, and those representing the advanced cultures of Central America and Peru, there is a long vista of progress."

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[1] Twentieth annual report, Bur. Amer. ethnol., 19, 1898–1899.

The fictile products of Chiriqui may be divided into a number of well-defined groups. With the exception of certain fugitive pieces, these are bound together by common though sometimes rather slender threads. The pottery as a whole may be looked upon as a more or less consistent unit. There are traces of northern influence and some evidence of contact with the peoples to the south, but these combined were not sufficient to overcome the art-molding forces from within. The latter were strengthened by the solidarity that comes with large numbers dwelling in contiguous communities over a restricted and somewhat isolated area. The abundance and size of the ancient cemeteries (huacals) scattered over nearly every part of the province are proof that the region was populous and the period of continuous occupation relatively long. There was time for tradition to make itself felt, for the development of centers where art crystallized about the beliefs and customs of the people. Thanks to the mildness of the climate, the care with which the graves were constructed and the practice of burying with the dead the objects most prized in life, the material for the study of Chiriquian ceramic art is not only most plentiful, but also especially well preserved.

Classification.

Holmes classifies Chiriquian pottery under two general heads, each with subdivisions, as follows:

- a. Unpainted ware:
  1. Terra cotta or biscuit group.
  2. Black incised group.
- b. Painted ware:
  1. Scarified group.
  2. Handled group.
  3. Tripod group.
  4. Maroon group.
  5. Red line group.
  6. White line group.
  7. Lost color group.
  8. Alligator group.[1]
  9. Polychrome group.

It is admitted that "the characters upon which the classification is based are somewhat heterogeneous and include material, color, shape, finish, ornamentation, method of manufacture, and evidences of use. No single character and no one group of characters can be relied upon to distinguish the different groups. We must depend, therefore, upon an assemblage of characters or upon one character in one place and another in another place." The foregoing classification was used "mainly as a means of facilitating description."

It would be difficult to devise anything essentially different that would be better than the classification proposed by Holmes; yet it is by no means perfect. There are more tripods, for example, in his "biscuit group" than in the "tripod group," so-called. And the tripod group has many characters in common with the "handled group." Again, he places the tripod group with the painted ware, but many of them were never painted at all. As a large proportion of the unpainted tripods that come under the head of "painted ware" had been used over the fire, they cannot be looked upon as unfinished specimens. There was evidently no thought of painting the pieces in question.

Since the "white line" group is such a small one and resembles so closely some of the pottery from Costa Rica, it might have been well to eliminate that group altogether from the discussion of Chiriquian pottery. The same may be said of the "red line" ware, which also resembles a variety of Costa Rican pottery. But specimens of these two groups have undoubtedly been found in Chiriquian graves. Holmes's monograph is not only so well done but also so well known that to make serious changes in his classification would lead to unnecessary confusion. We shall, therefore, retain the white line and the red line groups.

Quite as distinct as either of these is another small group in the Yale collection, which is not mentioned by Holmes. It consists of a series of chocolate-colored tripods with incised ornamentation; this will be more fully discussed under the head of the "chocolate" ware. It, also, has marked Costa Rican affinities.

There is still another series of vessels that does not seem to have been touched upon by Holmes. In form it resembles somewhat the handled group; and, like the latter, almost all the pieces had served as cooking utensils. None, however, were painted. The paste, too, differs from that of the handled group, being darker in color and averaging somewhat coarser. In some instances there is a distinct salmon-colored slip, reminding one of the slip in one variety of the biscuit group. This series evidently stands between the handled group and the biscuit group. None are mounted on tripods. It may, for convenience, be styled the unpainted variety of the handled group.

I think that three important changes should be made in the classification of Holmes. On subsequent pages, I shall give my reasons for proposing the name *armadillo* group in place of "terra cotta" or "biscuit" group; *serpent* group instead of "black incised" group, and *fish* group instead of "tripod" group.

UNPAINTED WARE.

As a matter of convenience Chiriquian pottery may be classified as belonging to two grand divisions depending on the use or non-use of paint. The line of separation, however, is not so distinct as those defining the limits of the groups composing each division. We find, for example, that one variety of handled ware is painted, while another is unpainted. On the other hand, some examples of the tripod or fish ware, one of the groups of painted pottery, do not seem to have ever been painted. With these exceptions, the various groups fall wholly either within the painted class or the unpainted class. Biscuit or armadillo ware, for example, is always unpainted, and alligator ware is always painted. It is worthy of mention that the largest group of unpainted ware probably served ceremonial purposes, while vessels of one group of painted ware were especially employed in ways utilitarian.

THE ARMADILLO GROUP.

This is the large group called by Holmes "terra cotta" or "biscuit" ware. It includes "only the pale grayish yellow and reddish tints of the burned clay." This group is represented in the Yale collection by over sixteen hundred pieces. A majority of the specimens are tripods. Almost as many are round-bottomed vases. Sixteen have annular bases. The handled and tripod groups combined number but six hundred and sixty-three, only two hundred and seventy-three of these being tripods. If the collection as a whole may be considered a representative one, and there is reason to believe that such is the case, then the tripod variety of the armadillo group has the first claim to consideration as the tripod group, since its numbers are far greater, both absolutely and relatively, than those of the tripod variety of the handled group.

In beauty of form and ornament, the specimens of the armadillo group are inferior to none. Perhaps better than any other class they typify the plastic skill and unerring taste of the ancient Chiriquian potter. There are only a few generic forms, but an almost bewildering number of individual variations. In point of size, also, much latitude was allowed. The smallest vessels are to be found among the cups. The vases average the largest, while the tripods occupy an intermediate place. The smallest cup in the collection has a capacity of but six cubic centimeters; the tripods vary in capacity from twenty cubic centimers to about two liters (2000 cc); and the largest vase holds 6.6 liters (6600 cc). The walls are carefully finished, both inside and outside, and are of uniform thickness. The walls even of the largest vases are quite thin, averaging not more than four-tenths of a centimeter in thickness. Flat bottoms are practically wanting. Handles are comparatively rare, being either single or paired and of the vertical loop type.

The paste used in the armadillo group may be likened to that of our modern porous flower pot, but in color it is not quite so pronounced a red. A cup-shaped vessel with legs, holding 335 cubic centimeters, was filled with water and left in a room at a temperature of seventy degrees Fahrenheit. It was emptied by combined evaporation and filtration in seventy-two hours.

A question arises as to the function of these artistic vessels. Holmes thinks that it could not have been of a domestic nature, "as they show no evidences of discoloration or wear." This is not strictly true of the specimens in the Yale collection. Out of a total of 1620 pieces, eighty-one or exactly five per cent bear marks of having seen service. These marks generally consist of a greasy smoky surface over both the exterior and interior. The use, however, was not necessarily domestic; it may have been ceremonial. A probable key to the nature of such ceremonial use may possibly be found in Seemann's[1] description of the rites attending the death of a chief among the Indians of Panama at the time of the discovery: "The corpse after being enclosed in the best blankets (mantas), and decorated with golden ornaments, was suspended over a fire, and the grease dropping out, carefully collected into earthen vessels; when dry, the body was interred, or, in some districts, preserved above ground."

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[1] Op. cit., I, 316.

Beginning with the more primitive forms, figure 55, from El Banco, resembles in shape an oblong wooden cup with rectangular rim. Another elongated form of equally rude workmanship is given in figure 56. The wooden angularity of outline, however, has disappeared, the rim being oblong and developed at one end into a diminutive handle which suggests the stem of a fruit, of which the vessel itself would represent one half. It comes from Divala, twenty-five miles west-northwest of David.

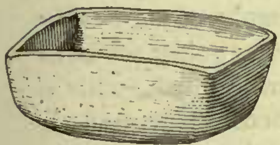
Fig. 55.

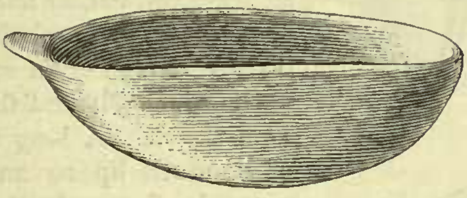
Fig. 56.

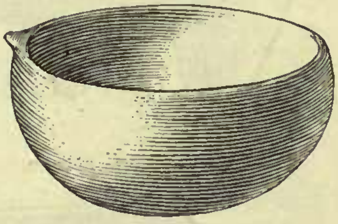
Fig. 57.

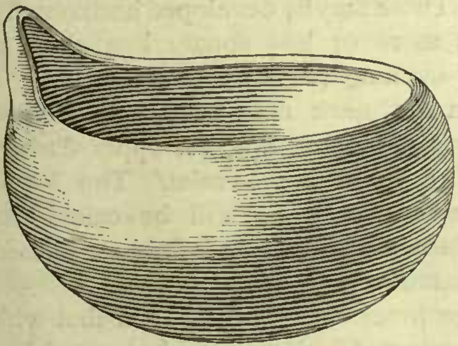
Fig. 58.

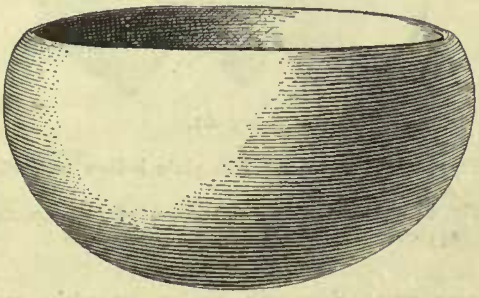
Fig. 59.

Fig. 55.—Primitive rectangular bowl; from El Banco. Armadillo ware. 1/2
Fig. 56.—Primitive elongated bowl with small handle; from Divala. Armadillo ware. 1/3
Fig. 57.—Calabash type of cup with diminutive handle; from near Bugavita. Armadillo ware. 1/2
Fig. 58.—Hemispherical bowl with spoutlike projection of rim; from near Bugavita. Armadillo ware. 1/2
Fig 59.—Calabash type of bowl with no projection of rim. Armadillo ware. 1/2

The hemispherical cup reproduced in figure 57 is related to the foregoing type, although of superior workmanship. Its prototype was the vessel made from part of a gourd or from the fruit of the calabash tree (*Crescentia cujete*). A slight projection at one point on the rim may represent the stem of the fruit, as well as a handle that is practically functionless because of its small size. In figure 58, the rim projection is not only much increased but is grooved so as to form a sort of spout instead of handle. These last two pieces are from the same locality (six miles northwest of Bugavita). Figure 59 is an example of the calabash type without any rim protuberances.

Variations from the calabash type are seen in Plate V. One of these may be brought about by the incurving of the rim (fig. *a*), thus restricting the area of the mouth opening. Another step is taken in a vessel from Escaria (fig. *b*), which is depressed vertically. The incurving of the rim leads quite naturally to angular outlines. Another method of producing angular outlines is by carrying the sides of the vessel up vertically, as shown in a bowl from Bugavita (fig. *c*).

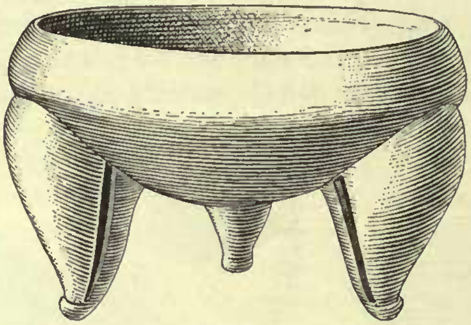

Fig. 60.

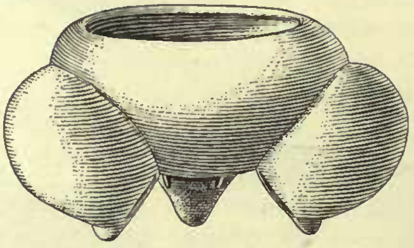

Fig. 61.

Fig. 60.—Tripod bowl with plain hollow supports. Armadillo ware. 1/3

Fig. 61.—Tripod bowl with plain hollow supports, apparently inflated. Armadillo ware. 1/3

If after building the sides of the vessel past its greatest horizontal diameter, the rim be carried up more or less vertically, there is obtained the bowl-shaped vase seen in figure *d*. The neck may make a variety of angles with the shoulder. It may be in-sloping, vertical, or flaring. It may be long or short. The relatively tall vase with pointed bottom is an example of the flaring neck (fig. *e*). It and the foregoing are both from Divala. A long flaring neck, with a pronounced lip as an accompaniment, is given in figure *f*. Sometimes four slight protuberances appear at the corners of the mouth. These may be developed horizontally to form more or less square lips about a circular opening (fig. *g*).

Again the neck may have two stories, the lower in-sloping and the upper flaring, as in figure *h* (from Divala). The lower story, which hereafter will be called the collar, is often chosen as a field for incised ornamentation.

As we proceed, it will be seen that with one exception the entire ceramic art of the ancient Chiriquians is but an elaboration of the foregoing elementary forms — forms that had their origin in vessels made of wood, the gourd, the calabash, etc. The simplest elaboration is the adding of three legs to form a tripod. These began, no doubt, as short pegs. They soon grew in dimensions and were made hollow. They were then supplied with earthen pellets as rattles, and slit so that the sound might not be muffled (fig. 60).

Tripods of the armadillo group, as has been noted, are very numerous and about sixty-five per cent are of the calabash type, i. e., hemispherical in shape. Only about fifteen per cent are angular in outline, and the remainder (twenty per cent) are supplied with necks. Collars are rare. Only two or three of the tripods have an oblong bowl with angular rim, and perhaps as many are so altered in the equatorial zone by ornaments in relief as to disguise somewhat the essentially spherical nature of the bowl, thereby suggesting some animal form; the crab, for example.

Sometimes the legs have the appearance of being inflated and thus stand out from the body of the vessel in such a manner as to be quite conspicuous, even when the latter is viewed from above (fig. 61). Again, they may end in a blunt point. In some cases the tripod bowl is open and shallow, resembling a halved calabash, in others it is almost spherical. An example of the rarer angular bowl is given in Plate VI (fig. *a*). Tripods with a single median slit in the leg are even more numerous than those with two lateral slits in each leg. To this type belongs a rare double tripod (fig. *b*), the bowls being united by a sub-cylindrical tube, slit, and carrying a single ball of clay. The shoulder ornaments probably represent the armadillo. In figure *c* each leg has four vertical slits, two lateral and two median. This brings us to a rather small but interesting group of tripods with multiple slits in each leg, the slits being usually short and seldom vertical (fig. *d*).

The pellets, etc., with which the hollow legs of tripods are supplied, are as a rule little balls of clay, numbering from one to half a dozen or more in each leg. In rare instances, calcareous concretions are used in place of clay balls. Mr. McNiel sent the following note with the collections he sold to Yale University Museum:

> David, Chiriqui, U. S. C. May, 1879.
>
> Herewith I send samples of what seems a curious formation, found imbedded in soft friable rock which outcrops near steamer's landing, 3 miles from David. I am not certain whether all the pebbles found in the legs, etc. of the pottery from the ancient graves are of this material, but I found, on examining broken specimens, their identity. I believe the rock in which they are found to be tufaceous, being much honey-combed by irregular cells.
>
> J. A. McNiel.

As far as the Yale collection is concerned, the use of these concretions as pellets for tripod legs, etc., is very rare indeed, occurring perhaps in a single case only (fig. *e*). The tripod in question, which is of high artistic merit, is much discolored by grease and smoke.

The rattles in the legs of some of the tripods are not pellets at all; but simply little masses of clay, irregular in shape, that were pushed into the hollow of the legs when the latter were slit or punctured. This is particularly true of the group of tripods last referred to, in which each leg bears multiple punctures in the form of short slits, crosses, etc. In these examples, the leg was first attached to the body of the tripod, then punctured. As a rule, the character of the margins of the slits would seem to indicate that the punctures were made after the paste had become dry and hard, perhaps after baking (fig. *f*). With a mallet and small punch, both of wood, I was able to produce similar punctures on baked specimens without shattering the hollow leg. The slits in figure *g* could have been made in the same way. They were lengthened by three or four successive light taps, after which the end punctures were made with the same instrument. The foregoing examples are both from Bugavita. Another tripod vase in which the leg rattle is supplied only with irregular fragments of burnt clay is reproduced in figure *h*. Here some of the punctures take the form of a cross. This piece comes from Escaria.

It did not require a wide stretch of the imagination to arrive at the zoömorphic possibilities of the plain tripod leg. By the application of nodes and fillets of clay to the hollow tripod supports they immediately assume animal forms, as illustrated in figure 62, which suggests man or the ape. Something similar is seen in an example from Bugavita (fig. 63). The long arms are those of the monkey, but where the head should be there squats a little round-bodied animal with long tail.

But in all probability the first efforts to convert the ordinary tripod leg into an animal form were much more realistic in their results. Take, for example, figure 64 (also from Bugavita). A few nodes and fillets, plain and incised, added to the usual type of support bring out the form of a frog, complete in every detail. Somewhat similar and equally good results are produced by the same means in figure 65. The bowl of the latter is classic in form. The rim is ornamented with two armadillos. The frog is a favorite shoulder ornament on vases of the biscuit or armadillo group.

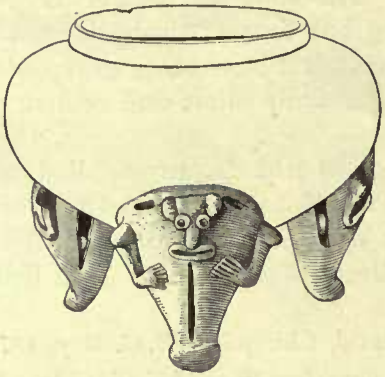

Fig. 62.—Tripod with zoömorphic supports. Armadillo ware. 1/3

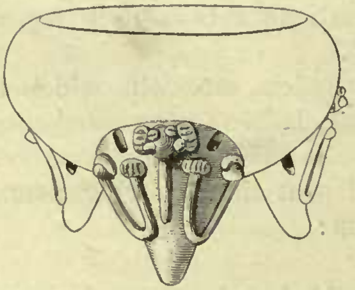

Fig. 63.—Tripod bowl; from Bugavita. Armadillo ware. 1/3

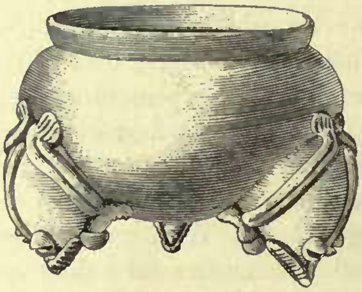

Fig. 64.—Tripod with froglike supports; from Bugavita. Armadillo ware. 1/3

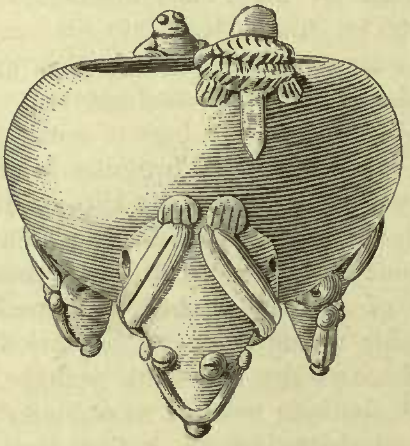

Fig. 65.—Tripod of classic form, with froglike supports, and rim ornamented with armadillos. Armadillo ware. 1/3

As the plain leg became more and more disguised by the application of nodes and fillets, its identity seems to have been lost sight of, as seen in Plate VII, where it is a caricature of the human form. In figures *a*, *d* and *e*, there is very little alteration of the plain tripod support. A bifurcation is only hinted at in figures *b*, *c* and *h*, with a suggestion of toes in the last two. The supports in figures *f* and *g* are frankly human, the representation of the loin-cloth removing all doubt on this point. The bowl in the former is exquisitely turned, resembling in its outline the Venetian renaissance goblet.

The identity of the primitive leg form is completely lost in figure 66. Each support is an apelike head with four projecting tongues that fill and even greatly distend the mouth. If the tripod were inverted it would show a drooping left ear on each head. The potter's sense of humor shows to good advantage here as well as in many succeeding illustrations. From the view-point of modeling, this piece has no superior in the whole collection. The diameter of the cup is everywhere equal, as is that of its rim, and the distance separating the grotesque heads is everywhere the same. Other specimens from this locality, eight leagues west-northwest of Bugavita on the Acoo river, are also beautifully modeled.

Grotesque heads are often attached to the rim of tripods, as illustrated in Plate VIII, figures *a* and *b*. These heads occur singly or in twos, one on either side. Sometimes a tail takes the place of one of the heads. In that case there may be four feet with toes pointing in the direction of the head, instead of three, as in figure *c*. The animal head on the rim in this piece resembles that of the lama, which probably means either Peruvian influence or formerly a wider geographic range north. It will also be seen that the whole body of the animal, instead of the head only, may appear on the rim (figures *d*, *e* and *f*); and that zoömorphic features may be shifted to the equatorial zone, altering somewhat the more or less spherical form of the bowl (figures *g* and *h*).

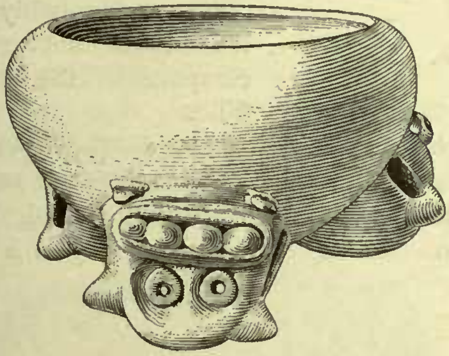

Fig. 66.—Tripod bowl of superior modeling, supported by three grotesque apelike heads; from near Bugavita. Armadillo ware. 2/3

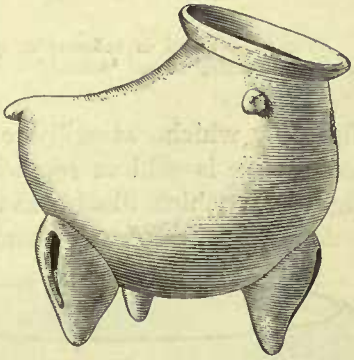

Fig. 67.—Tripod representing a primitive zoömorphic type. Armadillo ware. 1/3

A further step toward the conversion of the phytomorphic into the animal type is taken in figures 67 and 68. The sculptor's treatment of the eye is an interesting study. It is sometimes a plain node. More often the node is flattened and marked with an annular indentation such as a straw or hollow reed would make. But the most common method of all is to represent the eyelids by an incised line across the center of the flattened node. When the latter is comparatively large and set in a shallow cavity, it may look exactly like the head of a screw.

There is a curious little group of tripods, showing a pair of prominent screw-head eyes on each support. Practically all of them come from one locality, Divala. In some of these, the flattened node is dispensed with and a straight incision made in the shallow socket. This leads to a new phase of the sculptor's art, where the effect of relief is produced by shadows only, as witness the spacious empty sockets in figure 69. The deeper shadow of a little hole sunk in each may represent the pupil. Another way of representing the eyeballs by means of shadow is shown in figure 70. The horizontal incisions on each support are probably intended to imitate the carapace of the armadillo.

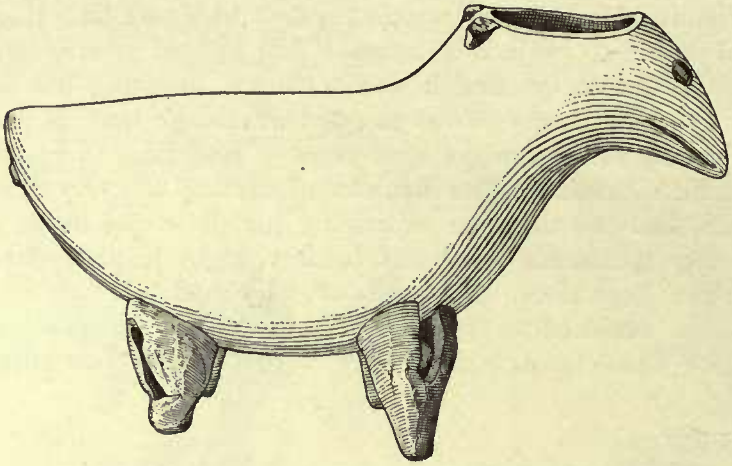

Fig. 68.—Vessel of zoömorphic type, with four legs. Armadillo ware. $^1/_3$

The fish which, as will be seen, is such an important factor in the so-called tripod group, is seldom reproduced in the armadillo ware. An example is shown in figure 71, which illustrates a pair of pectoral and ventral fins, respectively, and two dorsal fins, serving to transform a plain solid support into the body of a fish.

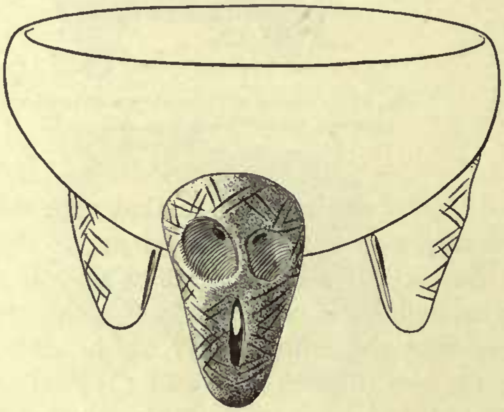

Fig. 69.—Tripod bowl showing sculptor's use of shadows in modeling the eye. Armadillo ware. $^1/_3$

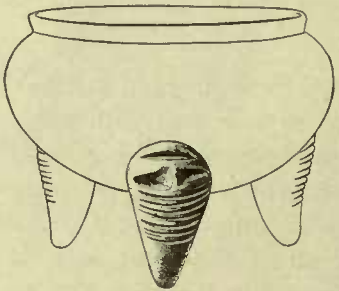

Fig. 70.—Tripod bowl exhibiting further use of shadows in modeling the eye. Armadillo ware. $^1/_3$

The foregoing tripods all belong to what Holmes[1] calls the *terra cotta* or *biscuit* group of ware. This group also comprises vases, bowls and cups. The characteristic types of tripod are well rendered in the preceding illustrations, the ornaments being confined chiefly to the supports. Among the vases, on the other hand, the decoration is shifted to the shoulder, neck and handles, there being no supports to decorate. In shape, the body of the vase is often identical with that of the tripod. To convert a tripod into a vase, one has but to remove the applied supports. To make the kinship more apparent, shoulder ornaments or handles are sometimes added to the tripods (see figs. 65 and 83). Such additions, especially of handles, are quite rare.

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[1] W. H. Holmes. Ancient art of the province of Chiriqui. Sixth ann. rept., Bur. Amer. ethnol., 67, 1884–85.

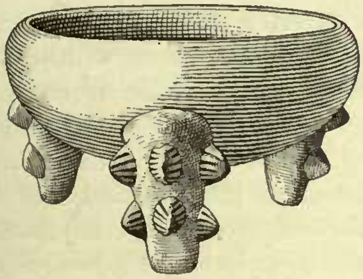

Fig. 71.—Tripod bowl with solid fishlike supports. Armadillo ware. 1/2

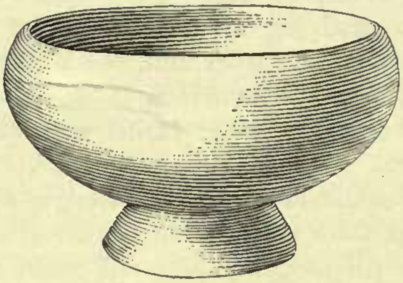

Fig. 72.—Bowl with annular base; from El Banco. Armadillo ware. 1/2

Another form of support suggested itself in the annular base or foot, as seen in a specimen (fig. 72) from El Banco. This form of foot, like the feet of the tripod, increased in size, was sometimes made hollow, slit, and supplied with pellets, as in figure 73, a handsome goblet-shaped vessel from Bugavita. The latter specimen has a greasy smoky exterior, the blackest part being the concave bottom of the base.

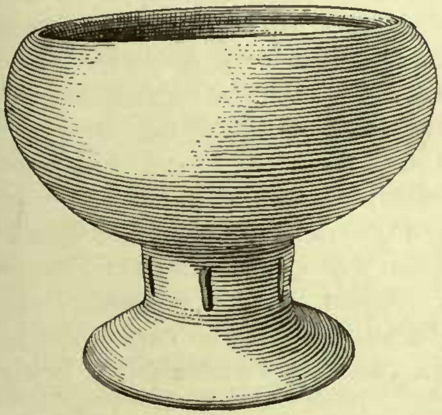

Fig. 73.—Goblet-shaped vessel; from Bugavita. Armadillo ware. 1/2

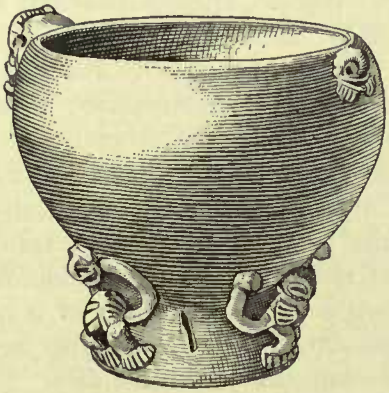

Fig. 74.—Bowl supported by annular base and human figures. Armadillo ware. 1/2

In the specimen exhibited in figure 74, the bowl is supported not only by an annular base but also by three fantastic human forms. There is a hand at either end of each long arm, making four in all — two resting on the head and two on the stomach. The thorax is eliminated. Two animal heads adorn the rim, and pellets convert the hollow base into a rattle.

Legs and annular bases alike were put on after the bowl was shaped but before the application of the slip and the polish. Handles, plain and ornamental, were also added, but even these did not suffice to obliterate evidence of the fact that the vessel had passed through the calabash stage. All such vessels we shall call *phytomorphic*. Almost ninety-eight per cent of the whole Chiriquian collection, painted and unpainted, belong to this class. The zoömorphic class is manifestly of later development. It includes all pieces that, taken as a whole, form each a complete zoömorphic unit. Animal forms appear, of course, in the phytomorphic class, but only as supports, handles or ornamental features.

In studying the elaboration of simple forms, it is often possible to determine which is the earlier and which the derived. In comparing one group with another, however, the evidence is not so abundant, yet it may be possible to determine which group is the earlier and which the later.

But when it comes to individual specimens, it would be impossible, in the present state of our knowledge, to say that any or all of the specimens of terra cotta ware antedate any or all of the examples of the alligator group, for example. Nevertheless, my personal belief is that the ancient inhabitants of Chiriqui were making biscuit ware of a high order of excellence before they ever learned to paint figures of the alligator that occur so often in the group of that name.

The armadillo group certainly stands for a high degree of perfection in the potter's art. But a high grade of excellence may appear at an early stage in any great art-awakening, as is attested by the paleolithic sculpture, engraving and frescoes of the Dordogne, France, the Phidian age in Greek sculpture, and the Italian paintings of the XVth and XVIth centuries.

Perhaps the chief reason for believing that the armadillo group represents an early stage of excellence lies in the fact that individuality is stamped on almost every piece. The fundamental forms are few; but the variations in the execution of these forms are multifarious. The modeling seldom fails to please, and the interior is finished with the same care as the exterior, with the exception of the zone nearest a constricted mouth that is too small to admit the hand of the modeler. The ornamentation is confined to figures in the round, and patterns incised and in relief; but is always as tasteful as it is rich in variety.

Contrast these manifold variations in form and ornamentation with the monotony of the handled group, for instance, and the latter's shop-made character becomes most striking. With the addition of the new element of color, one would expect to see progress in ornament if not in form, yet such is not the case. The same unattractive form is repeated again and again, the only variable factor being in the treatment of the handles.

From the view-point of form, the lost color group and the alligator group are also more monotonous than is the armadillo group, and less attention is paid to modeling. This is particularly true of the interior of the vessels, which is left in the rough, thus causing the sides to be thick in some places and thin in others. The bottom is generally quite thick. The latter condition may have been intentional in order to secure more stable equilibrium. Such work may be compared to that of an artist who is in too great haste to give up drawing for the palette and brush.

The Armadillo Motive.—Among the animals represented in this group, the armadillo is easily predominant. In speaking of the American zoölogical provinces north and south of the Mexican table-land, Seemann[1] says: "The armadillo, for instance, which indisputably belongs to South America, is found in no part of Panama; but again appears in the neighborhood of Mazatlan, in latitude 23° 12′ 0″ north."

This is probably incorrect. A recent letter from Dr. J. A. Allen, Curator of the Department of Mammalogy and Ornithology, American Museum of Natural History, states that two species belonging to different genera are found on the Isthmus of Panama at the present time, one known as *Cabassous centralis*, the other being the wide-ranging nine-banded armadillo, *Tatu novemcinctum*. The armadillo was evidently an object familiar to the ancient potters of Chiriqui. As it now inhabits the Isthmus, it did so, no doubt, on the occasion of Seemann's voyage in 1853. One of the two species above mentioned, *Tatu novemcinctum*, which has "an extensive range from Texas to Paraguay,"[2] is recognized in the ceramic art of Chiriqui by the treatment of the carapace, which is composed of three quite distinct regions, the banded region differing in structure from the anterior and posterior sections. This triple division of the carapace is faithfully reproduced in many instances. It may be done by three incised fillets (see figs. 77 and 79). A more exact delineation, however, is arrived at in painted ware, when the banded region is represented by transverse parallel lines and the anterior and posterior division by cross lines or spots (see Pl. XLI, fig. *a*). In one instance (see fig. 270), the middle section is composed of three bands in relief, painted red; while over the shoulders and the hips, the smooth surface of the carapace is painted black. This specimen more nearly resembles the small *Tatu tricinctum* of South America than it does the larger nine-banded species.

That *Cabassous centralis* also served the ancient potter as a model is highly probable. The three regions of the carapace are almost as distinct as in the nine-banded armadillo, but *Cabassous* is not quite so large and its head, ears and tail are proportionately shorter.

In the development of art, it would be difficult to estimate how far realism lies from the very first steps toward imitation on the one hand, and from the last stages of conventionalism on the other. The stages at either end of the line may often appear to be identical. It is therefore hazardous to decide whether a given representation be a first attempt at copying a model or the work of a man with a background of art inheritance and training, who can suggest the whole by a skilful elimination of non-essentials.

If the line of art development were plotted, it would probably be found to rise rather suddenly to the acme of realism, and then drop slowly to about its original level. The accompanying series of illustrations, however, does not begin at the beginning but rather at the crest of the realistic wave, and descends gradually to the trough, probably that one lying on the conventional side; yet some of the stages shown might just as well be steps in the ascending, as in the descending scale. In other words, a definite chronological sequence has not yet been established. There are reasons, however, for the belief that a representation of the entire armadillo came first, after which certain parts, such as the carapace, were seized upon to take the place of the whole. Finally a single band of the carapace was chosen, not only to stand for the whole animal, but also to be used as an ornamental motive pure and simple.

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[1] Op. cit., I, 261.

[2] Flower and Lydekker. An introduction to the study of mammals, 201, London, 1891.

Three realistic armadillos support the tripod shown in figure 75. The work has an unfinished appearance, but the parts are all represented, even to the three regions of the carapace. In figure 76, the parts are all present, but the legs of the armadillo are reduced to feet only. In a specimen from Escaria (fig. 77) the reduction is carried further by the total elimination of the hindlegs and hindfeet. The one essential feature of the armadillo is the carapace. This persists after all other parts have been eliminated, as shown in figure 78, where it is represented by horizontally arranged incisions.

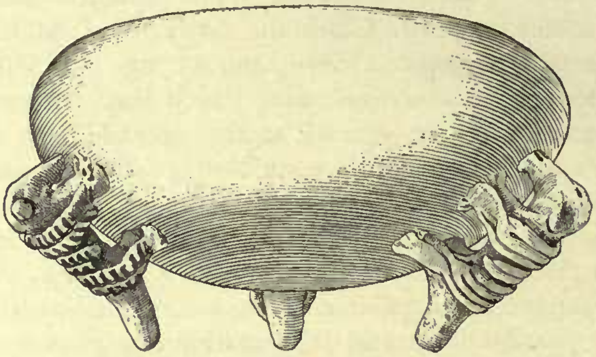

Fig. 75.—Bowl supported by three realistic armadillos. Armadillo ware. $^1/_2$

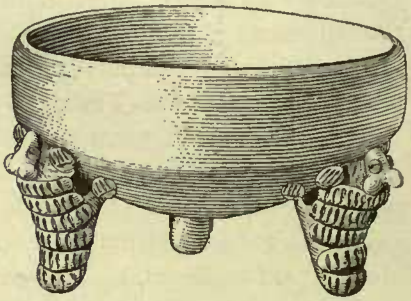

Fig. 76.—Bowl with similar tripod supports the extremities of the armadillo being reduced to feet only. Armadillo ware. $^1/_2$

A more detailed series showing the gradual elimination of parts is given in Plate IX. The armadillo is represented in the round in figure *a*. The simple tripod support in figure *b* is incised to represent the carapace; an indifferent head is added and the hindfeet are brought forward close to the forefeet. In figure *c*, the hindfeet have entirely disappeared and the forefeet are conventionalized, a flattened node with parallel incisions representing toes. This becomes eventually a decorative motive that is used independently of the armadillo or any other animal form. The head is considerably reduced and simplified in figures *d* and *e*, the

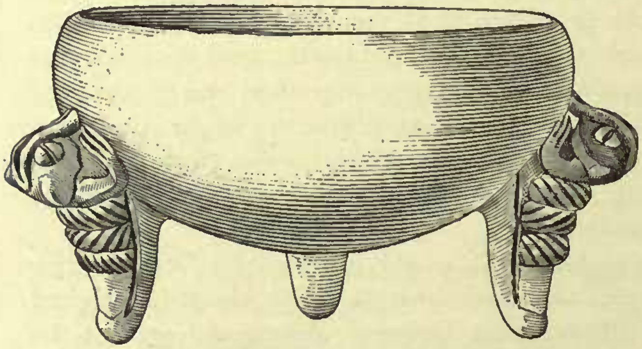

Fig. 77.—Tripod bowl in which the hindlegs and feet of the armadillo are eliminated from the supports. Armadillo ware. $^1/_2$

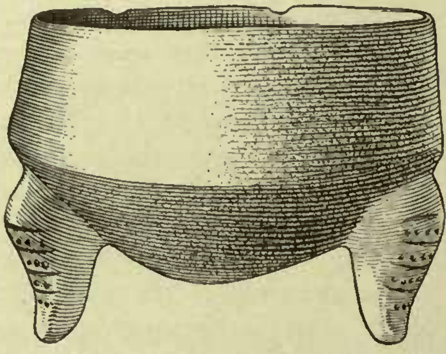

Fig 78.—Tripod the supports of which are ornamented with carapace motives only. Armadillo ware. $^1/_2$

legs and feet having disappeared completely. In the latter figure, the carapace is suggested by the nail marks of what appears to be a female hand. In figure *g*, the head and forefeet reappear as plain nodes, while the carapace is wanting. The series ends (fig. *i*) with simple tripod supports horizontally incised to represent the carapace, the armadillo motive par excellence.

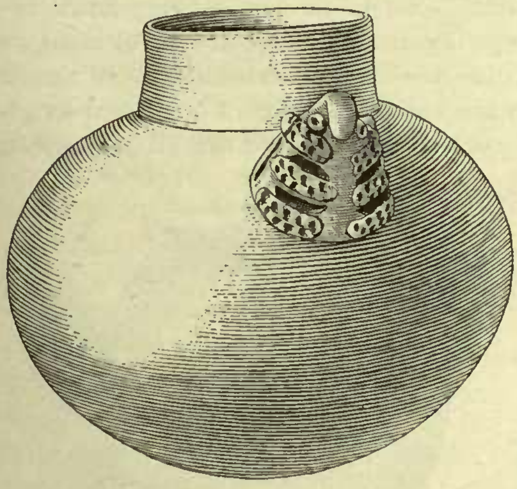

Fig. 79.—Vase with shoulder ornament in which the carapace motive is present on ventral surface only. Armadillo ware. ¹/₂

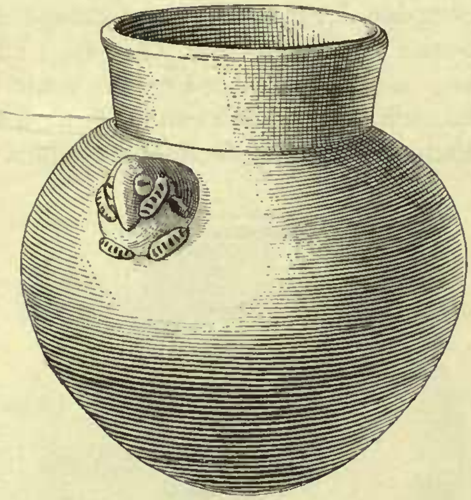

Fig. 80.—Vase with shoulder ornament showing but two divisions of the ventrally placed carapace. Armadillo ware. ¹/₂

We have seen that many tripod supports were fashioned to resemble the armadillo, sometimes highly realistic and sometimes conventionalized. In eighty-one of the biscuit vases, the head of the armadillo is employed as a shoulder ornament, the back of the head always being turned toward the aperture of the vase. The carapace, therefore, if it were visible at all, would have to be shifted from the dorsal to the ventral side. Such is the case in figure 79, where the three regions of the carapace are indicated by the indented horizontal fillets, each being interrupted for a space in the median ventral line, which is only a concession to realism, since the bands do not reach the median line in nature. A ventral view would include the margins of the carapace on either side. It is important to note, however, that no attempt is made to represent the dorsal part of the carapace where it would not be easily visible. Only two divisions of the cara-

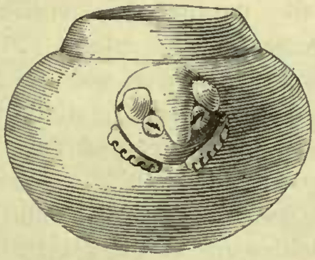

Fig. 81.—Vase with shoulder ornament and only one division of the ventrally placed carapace. Armadillo ware. ¹/₂

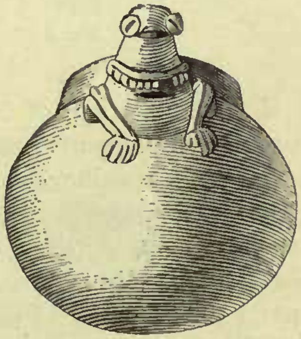

Fig. 82.—Cup with shoulder ornament on which an unbroken band represents the ventrally placed carapace motive. Armadillo ware. ¹/₂

pace are present in figure 80, while in figure 81, but a single section remains. The eyes and ears still persist.

Sometimes the carapace is carried across the ventral surface without a break at the median line. An example of this is seen in figure 82, where a single band represents the entire carapace. This band does not appear on the dorsal surface. The identity of these shoulder ornaments might be in doubt were it not for the occasional ventrally placed carapace motives. One of the connecting links between the tripods and vases (fig. 83) belongs to this type. A single element of the carapace is placed on the ventral side, the ends of the two incised fillets almost touching the median ventral line; while another carapace element is applied longitudinally over the vertebral column. The eyes, ears and nose are all prominent.

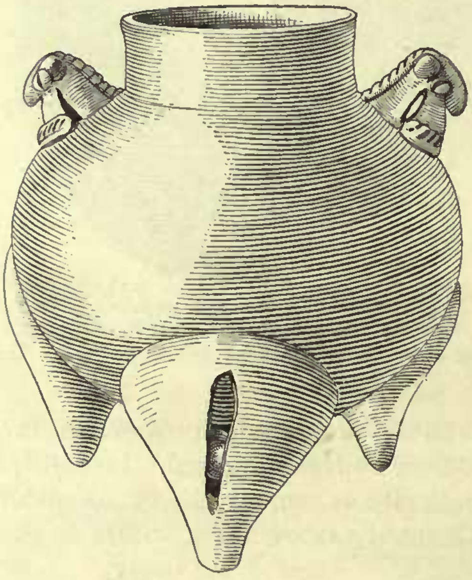
Fig. 83.

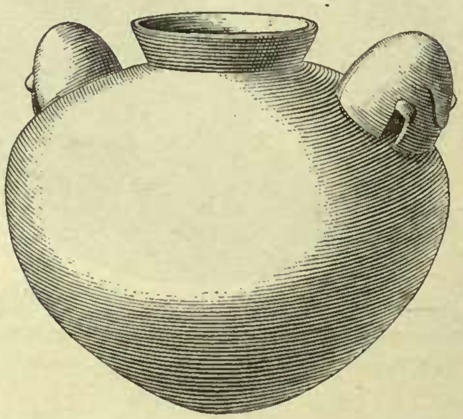
Fig. 84.

Fig. 83.—Tripod vase with shoulder ornament to which carapace motives are applied both dorsally and ventrally. Armadillo ware. 1/2

Fig. 84.—Large vase with armadillo shoulder ornaments from which the carapace motive is absent. Armadillo ware. 1/3

In a majority of cases the carapace is entirely eliminated, the forelegs usually and quite naturally taking its place (Pl. X, figs. *a* and *b*). The animal foot reduced to its lowest terms is seen in figure *c*, it being a flattened node with parallel incisions. This conventionalized foot will appear purely as an ornament in a group of vases to be described later. Even the conventionalized foot does not always accompany the armadillo head (fig. *d*). The reduction in parts and in size of the head itself reaches the limit in figures *e* and *f*.

Two of the largest vases belonging to the armadillo ware have armadillo heads in the round for shoulder ornaments. One of these is reproduced in figure 84. The shape is graceful and the modeling so perfect as to compare favorably with wheel-work. The ears of the armadillo are placed low, the eyes are wanting, and the nose is much depressed. Vases of the armadillo ware even finer and larger than this one have been found at Boruca, south of Terraba, Costa Rica. Mr. Minor C. Keith has one splendid specimen that came from a grave at Mercedes on the Atlantic coast of Costa Rica. It was evidently an importation, but the geographic distribution of this ware must be extended at least to take in the region bordering on the Gulf of Dulce in Costa Rica.

The entire armadillo is often used, also, as a shoulder decoration on vases of this group. Some good examples are given in Plate XI. In figure *a* the parts, even to the three regions of the carapace, are all fairly well indicated. The forefeet rest on the rim, the hindfeet on the shoulder of the vessel. A small vase from Escaria (fig. *b*) shows the armadillo placed somewhat lower and in an attitude as if in the act of burrowing with its unusually long nose. In fact, the burrowing attitude is characteristic and is very satisfactorily shown in figure *c*. Note that the feet here are flattened nodes with parallel incisions. In other words, they are foot symbols that may be used entirely alone, independent of the animal form to which the foot originally belonged, as will be seen in subsequent illustrations (see fig. 90). The tail is incised with a so-called herring-bone pattern, the lines running, however, in the opposite direction from what one would expect. The flaring rim of the vase is set so as to produce a diaphragm where the neck is most constricted. The use of the foot symbol as an independent ornament is shown in figure *d*, where it occurs in pairs on the neck of the vase. By a comparison of the armadillo tails in figure *e* with the ornament on the neck of the

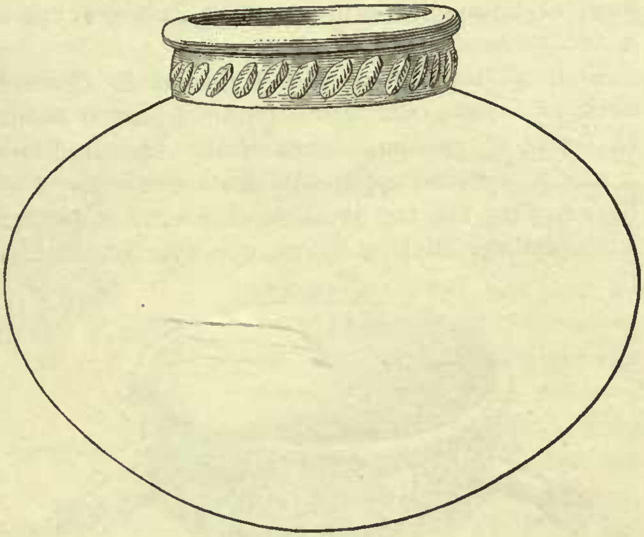

Fig. 85.

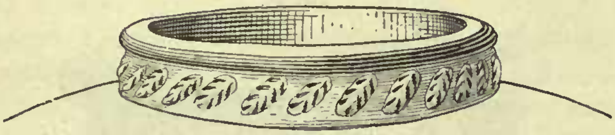

Fig. 86.

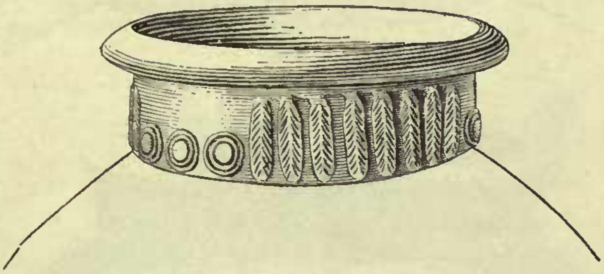

Fig. 87.

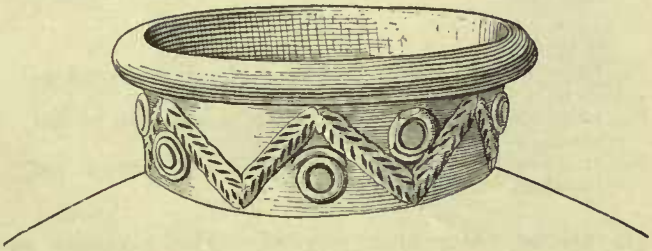

Fig. 88.

Fig. 85.—Neck of vase ornamented with the tail motive. Armadillo ware. $^{2}/_{3}$
Fig. 86.—Another example of the tail motive. Armadillo ware. $^{2}/_{3}$
Fig. 87.—Neck of vase ornamented with alternating groups of tail- and eye-motives. Armadillo ware. $^{2}/_{3}$
Fig. 88.—Neck of vase decorated with tail motive in meander, and an eye symbol in each angle. Armadillo ware. $^{3}/_{4}$

vase in figure *f*, it will be seen that the tail was used apart from the animal as a decorative feature.

The tail motive is often repeated in a series that completely surrounds the neck of a vase otherwise devoid of plastic animal ornamentation (figs. 85 and 86). In figure 87 groups of beautifully executed tail motives alternate with groups of a motive derived apparently from the eye. Another effective pattern is obtained by carrying the tail symbols in meander around the neck of a vase, each angular space being filled in by an eye symbol, as in figure 88.

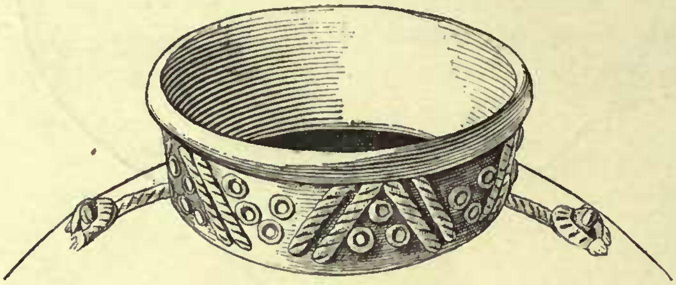

Fig. 89.

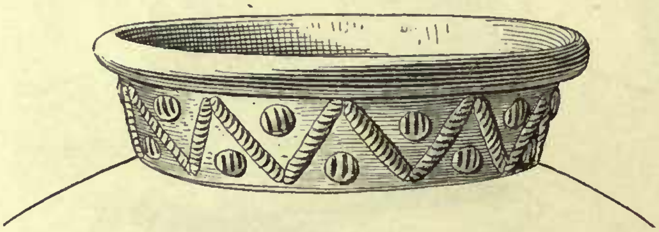

Fig. 90.

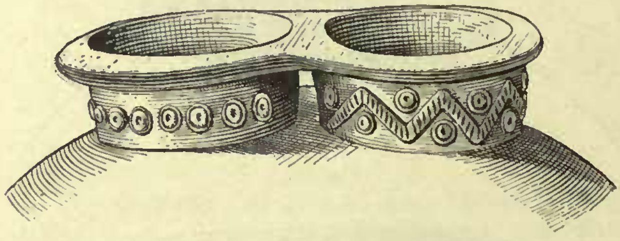

Fig. 91.

Fig. 89.—Neck and shoulder ornament of a vase proving the identity of the carapace motive. Armadillo ware. 3/4

Fig. 90.—Meander of carapace symbols accompanied by foot symbols. Armadillo ware. 3/4

Fig. 91.—Double neck of vase, ornamented with carapace- and eye-symbols. Armadillo ware. 1/2

The most characteristic feature of the armadillo is its carapace. It ranks first among armadillo motives. We have already noted how one band of the carapace was made to stand for all three divisions. Why could it not have been used independently to represent not only the whole carapace but also the whole animal? A careful comparison of the incised fillets that adorn the neck of the vase shown in figure 89, with the incised fillet that represents the carapace of the armadillo on the shoulder below, proves them to be identical. We have then a carapace symbol as well as a foot symbol and a tail symbol. There remain the flattened nodes with annular indentations seen on the neck of the same vase. Their counterpart is somewhat sparingly used to represent the eye, particularly of owl-like and monkey-like heads. They are, no doubt, eye symbols, but they are not confined to Chiriquian art. On the contrary, this particular ornament is common to the art of various times and peoples. The carapace symbol like the tail symbol makes an attractive meander in combination with either foot symbols (fig. 90) or eye symbols (fig. 91). With due regard to their mode of occurrence in nature the foot- and eye-symbols alternate in groups of four and two, respectively, forming an original pattern (fig. 92), but one not so pleasing as the foregoing meanders.

Foot, tail, eye and carapace, all may become purely decorative elements used independently of the whole animal and independently of each other; separately or in combination one with another, producing patterns as pleasing to the eye as they are original. In the figures here cited, the eye symbol is one of the common forms of representing the eye in Chiriquian art, viz., a flattened node with annular indentations. Another type will be described on a subsequent page.

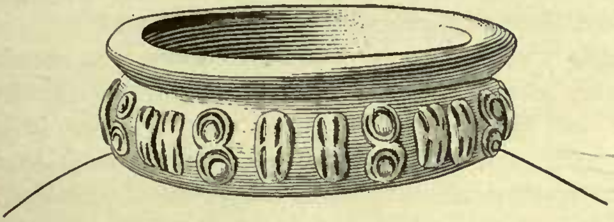

Fig. 92.

Fig. 92.—Neck of vase showing foot- and eye-symbols in alternation. Armadillo ware. $^{2}/_{3}$

Vases, are often supplied with a raised zone or collar below the neck, as has already been pointed out. The collar is usually adorned, but not always. When it is decorated the neck proper is generally plain. The collar ornament always consists of incised lines or indentations. These are sometimes combined in such a way as to produce effective patterns. Figures *a* and *b* of Plate XII show examples of collared vases, the latter being provided with an unusually large aperture.

In the Yale collection, there are several vases with two mouths. With two exceptions, these belong to the armadillo ware. Three are reproduced in Plate XII. In figure *c*, which represents an excellent example, a bridge connects the flange or lip of one mouth with that of the other. Over this bridge two armadillos face each other. The identity of the carapace with the carapace symbols that adorn both necks is beyond question. Alternating with these symbols are eye ornaments, after the fashion of the prevailing eye form in Chiriquian art.

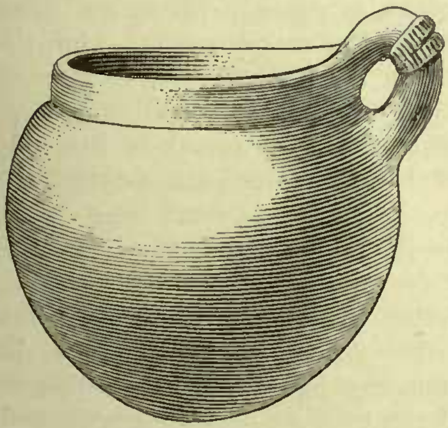

Fig. 93.—Vase, the single handle of which is ornamented with carapace motives. Armadillo ware. $^{2}/_{3}$

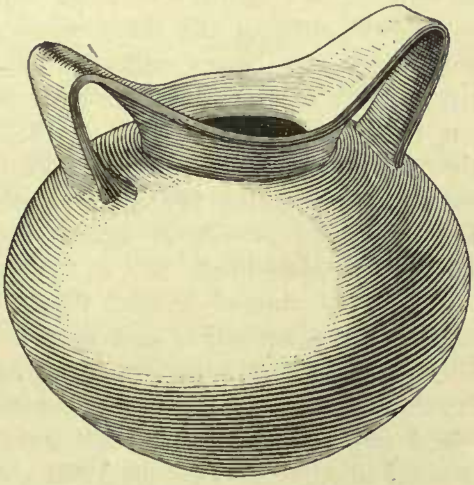

Fig. 94.—Vase with two undecorated handles. Armadillo ware. $^{1}/_{3}$

Sometimes the paired necks are perfectly plain. Occasionally they are set rather far apart, as in figure *d*, or fused as in figure *e*. In the latter case, a vertical partition wall in the plane of fusion divides the interior into two equal parts, thus making a double vessel.

A study of the foregoing illustrations will bring out the interesting fact that where either the neck or the collar is decorated there is always a flange or lip at the mouth opening. On the other hand, where the neck (or collar) is unadorned there is almost never a flange (see Pl. X). The latter seems to be a necessary accompaniment of the ornamented neck or collar to satisfy the sense not only of protection for the ornament but also of appropriateness in outline.

Reference has been made to tripods with features peculiar to vases, viz., shoulder ornaments consisting either of the armadillo head (see fig. 83) or of the entire animal. Examples of the latter are given in figure *f* (see also fig. 65). In one instance the nose and tail are long and slender; in the other, owing to the exposed position of the head, the nose is almost eliminated to avoid breaking.

It has been shown how the simple tripod support may be transformed into the armadillo, conventional as well as realistic; also how the armadillo, as a whole or in part, was used as a shoulder ornament, and the tail-, foot-, eye- and carapace-symbols, as ornamental motives for the necks of the handles of vases.

The handles of the armadillo group are always placed vertically, and are usually paired, connecting the lip with the shoulder. Of single handle there are two types; (1) connecting the lip with the shoulder, as in the paired handles, and (2) the handle starting from opposite points on the lip and forming an arch over the mouth opening.

These handles are generally ornamented, as illustrated in Plate XIII. The paired handles shown in figure *a* are not only adorned with three horizontally applied incised fillets representing the three sections of the armadillo carapace, but are also surmounted each by a pair of ears to heighten the zoömorphic effect. Those in figure *b* are entirely covered with carapace motives, leaving no doubt as to the significance of the decoration. Along the zone of union between the prolonged lip and the ascending ramus of the handles in figure *c*, nodes and fillets are applied representing the ears, feet and carapace of the armadillo. One has but to refer back to figure *a* (Pl. XI) in order to arrive at the artist's point of view, namely, that the handles illustrated in figures *a* to *e* are, to all intents and purposes, armadillos facing each other and peeping into the mouth of the vase. The armadillo motive in figure *d* is similar to that in figure *c*, except that it is much more simplified.

Instead of applied incised fillets, the handle itself may be simply incised to represent the armadillo carapace, as in figure *e*. From the horizontally applied fillets and the horizontally incised handles, it is but a step to fillets and incisions running obliquely; and a second step to the twisted handle so common in the *tripod* group, so-called, as will be seen by comparing figures *b* and *e* with subsequent illustrations (see fig. 125). In figure 145, the eyes are actually represented, so that the twisted handle evidently means a life form, probably the armadillo.

An example of one type of single handle is given in figure *f*. A well-developed flange protects the applied tail- and eye-symbols about the neck of the vase, illustrating again the sense of protection for the decorations in relief and of appropriateness in outline. On the crest of the handle, three eye ornaments in a row occupy a field bounded on two sides by carapace motives.

The armadillo motive in figure 93 is limited to a pair of incised fillets applied horizontally to the single lateral handle. The paired handles in figure 94 are unadorned. A vase with angular outlines and single handle forming an arch over the aperture and attached to the rim at either side is represented in figure 95.

An unusual treatment of the armadillo is seen in figure 96. The head barely protrudes beyond the carapace and the latter almost encircles the body of the animal. A long fillet encircling a head on the flat handle in figure 97 may be a conventionalized form of the armadillo. A similar motive appears in figure *a* of Plate XVI (see also fig. 130).

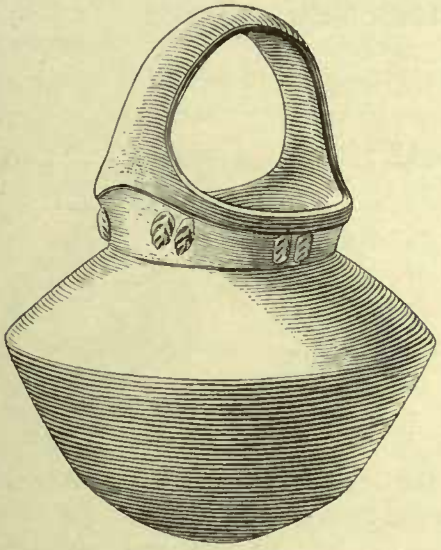

Fig. 95.

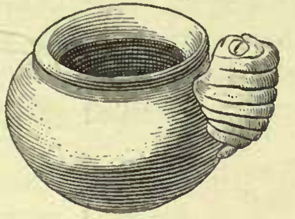

Fig. 96.

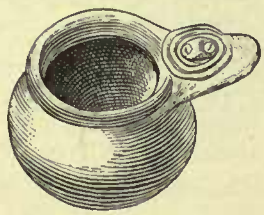

Fig. 97.

Fig. 95.—Vase with single handle forming an arch over aperture. Armadillo ware. 1/2
Fig. 96.—Cup with single shoulder ornament representing the armadillo. Armadillo ware. 1/2
Fig. 97.—Cup with single flat handle showing possibly a conventionalized form of the armadillo. Armadillo ware. 1/2

Revised Classification.—From the foregoing illustrations it is quite evident that the armadillo must have played an important decorative as well as symbolic rôle among the makers of the biscuit ware. The frog is not a very close second. After these come a number of animal forms more or less fantastically treated and not always determinable.

Of the 3668 pieces of pottery in the Yale collection, 1620 belong to the armadillo group. Of these about one-fifth are decorated with the armadillo motive in one or several of its many forms, the occurrence of other animal representations being rare in comparison. Among the makers of this ware, the preponderating influence of the armadillo suggests the totemic potency of this animal. Why not, then, call this group the *armadillo* group?

Such a terminology, together with the change from "black incised" to *serpent* group, as I have suggested on page 47, would tend toward uniformity. For similar reasons, the "tripod" group of Holmes might well be called the *fish* group.[1]

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[1] According to Seemann, the quantity of fish, especially in the Bay of Panama, early gave rise to the name of *Panama,* or *place where fish abound.* Fish are also abundant in the rivers.

All these changes would be in line with Holmes's choice of the name *alligator* for one of the important groups of painted ware. The names of life forms would then be given to four groups, instead of to one only.

By incorporating the proposed changes into the classification of Holmes,[1] the result is as follows:

a) Unpainted ware:
  1. Armadillo group (instead of "terra cotta" or "biscuit" group).
  2. Salmon-colored group.
  3. Serpent group (instead of "black incised" group).
  4. Handled group.

b) Painted ware:
  1. Handled group.
  2. Fish group (instead of "tripod" group).
  3. Chocolate incised group.
  4. Scarified group.
  5. Maroon group.
  6. Red line group.
  7. White line group.
  8. Lost color group.
  9. Alligator group.
  10. Polychrome group.

The armadillo still enters largely into the life of certain tribes. According to Dr. A. Hrdlicka,[2] it is a cherished article of food among the Indians of western Mexico, and medicinal properties are ascribed to certain parts. The Cora Indians, for instance, save the carapace and administer decoctions of it as a cure for stomach disorders. In this connection it is of interest to recall that the nine-banded armadillo appears in ancient Mayan picture writing.

As has been stated, the decorative features of the armadillo group are limited to figures in the round and to patterns either incised or in relief. They are also generally limited in location to the shoulders, collars, necks, feet and handles of

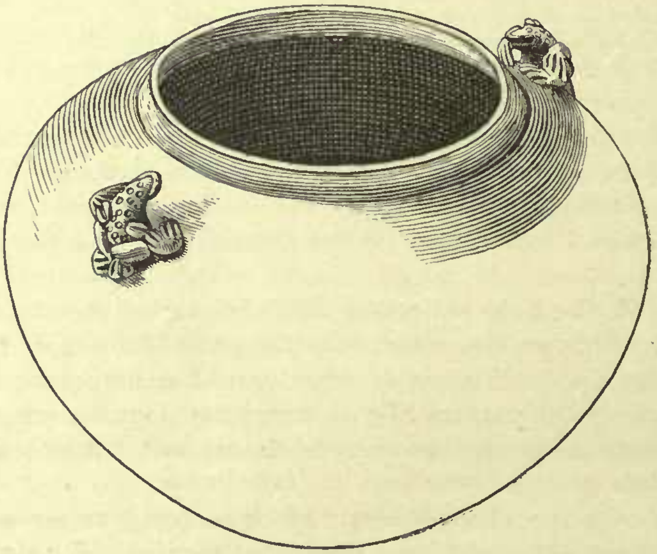

Fig. 98.—Vase with shoulder ornaments representing the frog, probably the Surinam Toad *(Pipa americana)*. Armadillo ware. 1/2

the vessels. Shoulder ornaments are always in the round. The frog is a favorite subject with the potters, a number of species being represented. A rather long-nosed variety, with eyes placed far back and a number of cup-shaped markings scattered over the back, is given in figure 98. It is probably the Surinam Toad (*Pipa americana*) and the markings may represent the eggs that are placed on the back of the female by the male, each egg sinking into a little pouch of skin covered by a gelatinous film. The embryos develop in these little pouches. Or it may be the "very minute species, beautifully spotted with black and red,"[1] that is said to be used by the Indians to poison arrows. The most logical way to suggest spots would be by markings of this sort, as paint was not used in this group of ware. A short-bodied species is represented in a vase from Divala (fig. 99). The eyes are indicated by indentations instead of by the usual incised nodes.

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[1] Op. cit., 67, 80 and 84.

[2] Personal letter, dated Oct. 4, 1906.

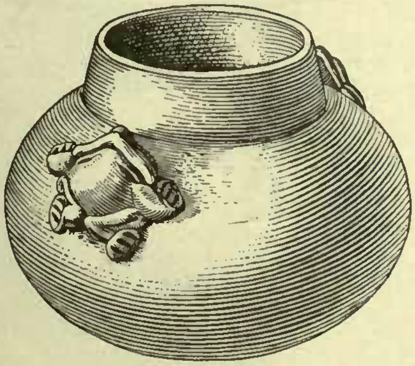

Fig. 99.—Vase with frog shoulder ornaments; from Divala. Armadillo ware. 1/2

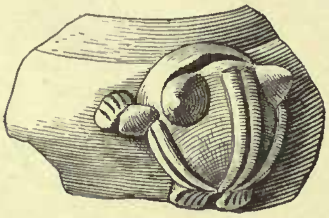

Fig. 100.—Frog illustrating the ceramic type of technique. Armadillo ware. 1/2

Other varieties are brought together in Plate XIV. Figure *a* shows a characteristic example of the adaptation of ornament to form. The noses of the frogs project above the level of the rim. This gracefully turned vase is from Jacu. Mention has already been made of the influence of technique in one medium over that in another. A good illustration of this is to be found in figure *b*, where the unduly flattened and attenuated hindfeet are exactly analogous in treatment to the hindfoot that is characteristic of the frog in metal. Evidently the potter has here taken his cue from the goldsmith (see fig. 344). In addition to the shoulder ornaments in the round, the collar bears a neatly incised pattern.

Another example of metal technique executed in clay is to be seen in figure *c*, where the hindfeet of each pair of frogs are represented by a long flat band of clay. One has but to compare this with its prototype in metal (see fig. 345). In the latter case, however, only the median legs of the pair are actually united.

As a rule, figures in the round used as ornaments are attached to the finished surface of the vessels. But in figure *d*, a perfectly modeled vase, each frog covers an oval horizontally flattened opening on the shoulder of the vase. The margins of the holes are neatly finished and, in connection with the mouth openings of the frogs, may have served as spouts. The feet of the frogs are of the flattened metallic type. This attenuated type may have originated in an effort to represent the web-foot of the frog, something that would hardly have been attempted originally in clay.

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[1] B. Seemann. Op. cit., I., 265.

The goldsmith, on the other hand, sometimes borrowed forms that are essentially ceramic in character, as when figure 100 was copied more or less faithfully in figure 347, which represents in metal a short round-bodied frog with bulging eyes and a median dorsal band reaching from the nose to the end of the spinal cord. In the terra cotta frog, the body is hollow and supplied with a clay pellet; the eyes are solid lumps of clay. In the metal frog, the bell-shaped eyes, provided with pellets of copper, function as rattles. The ornaments on the shoulder of the vase reproduced in figure 101 resemble the frog in the tadpole stage.

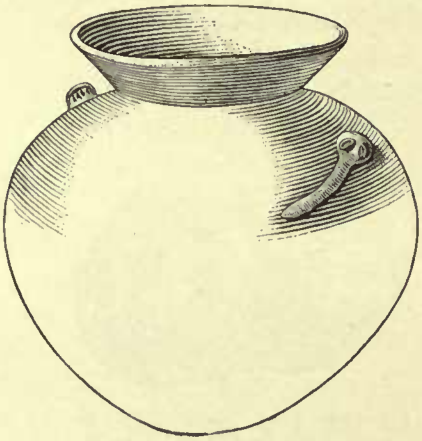

Fig. 101.—Vase with shoulder ornaments representing frog in tadpole stage. Armadillo ware. 1/2

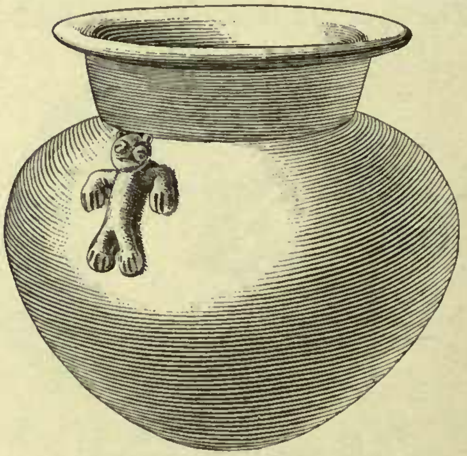

Fig. 102.—Vase with zoömorphic shoulder ornament. Armadillo ware. 3/5

The frog was abundant, especially during the wet season, January to April, and must have been an important totemic animal. In speaking of the abundance of toads about Porto Bello, Seemann quotes Lloyd, as follows: "So prodigious is their number after rain, that the popular prejudice is that the rain-drops are changed into toads ('de cada gota viene un sapo'); and even the more learned maintain that the eggs of this animal are raised with the vapor from the adjoining swamps, and, being conveyed to the city by the rains, are there hatched. The large size

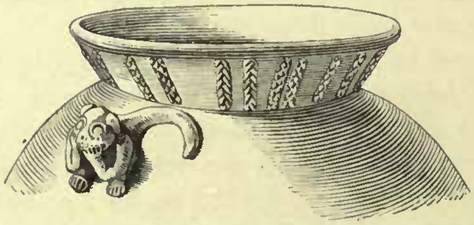

Fig. 103.—Vase with grotesque zoömorphic shoulder ornament. Armadillo ware. 1/2

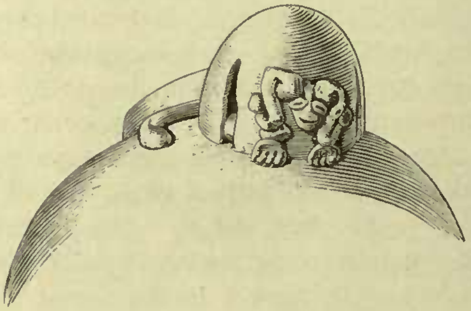

Fig. 104.—Fantastic zoömorphic shoulder decoration. Armadillo ware. 1/3

of the animals however — many of them being from four to six inches in breadth — sufficiently attests their mature growth in more favourable circumstances. After a night of rain the streets are almost covered with them, and it is impossible to walk without crushing some."

The armadillo and the frog by no means monopolized the attention of the makers of this biscuit or armadillo ware. Many of their efforts cannot be referred definitely to any particular genus. Some are droll, some fantastic, all are interesting. Figures 102 to 104 give some indication of the resourcefulness of the potter in posing his figures. Flat-bottomed vessels are exceedingly rare in the armadillo group, there being but a single example in the Yale collection (fig. 105).

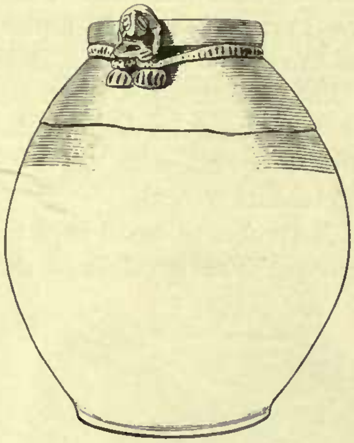

Fig. 105.—Unique flat-bottomed vase. Armadillo ware. 1/2

The distinctively human form is not often met with and is, as a rule, not executed so satisfactorily as are the forms of many of the lower animals. This holds true for the painted as well as the unpainted ware. It is often difficult to distinguish that intended for man from that designed for monkey. The most characteristic feature of the human head is the flattening between the frontal protuberances and the occiput. This character is well illustrated in figure 106, where the standing human form takes the place of the ascending ramus of the ordinary flattened paired handles. The human form as a shoulder ornament also appears in figure 107. The neck of this small vase is decorated with a carapace meander and a foot motive as an accompaniment.

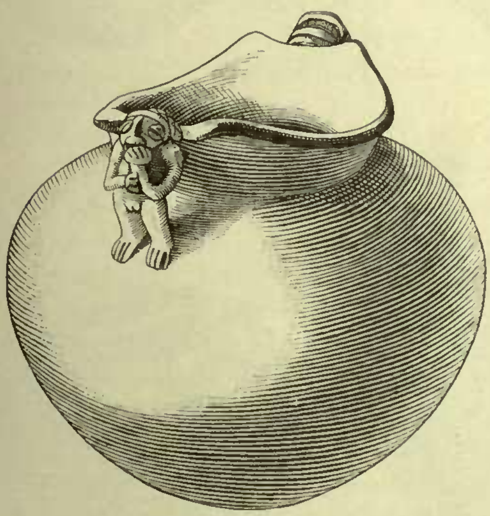

Fig. 106.—Vase with handles represented by the human figure. Armadillo ware. 1/2

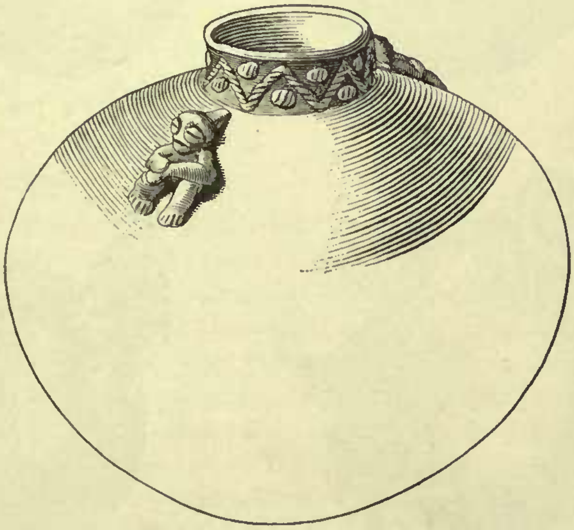

Fig. 107.—Small vase with anthropomorphic shoulder ornaments; neck decorated with carapace meander combined with foot symbols. Armadillo ware. 2/3

A variety of plastic shoulder ornaments are grouped together in Plate XV, which also affords an indication of the diversity in shape and dimensions of the rim. Two monkeys with hands on shoulders and with the long tail brought forward and across the chest sit on the shoulder of the vase in figure *a*. The green lizard is treated more or less realistically in figure *b*. Two catlike creatures, each chasing the tail of its mate, are reproduced in figure *c*. A remarkable form of vase may be seen in figure *d*. The diameter of the body is only two-thirds that of the rim. The latter is bell-shaped and finished in a perimetric roll. A similar rolling of the rim upon itself is shown in figure *e*. The plastic figure on the shoulder may be the armadillo, since carapace motives are placed both transversely and longitudinally on its back. The shoulder ornament in figure *f* probably represents a bird.

A number of small cups with single handle are included in the biscuit or armadillo group. The smallest of these cups has a capacity of only six cubic centimeters,

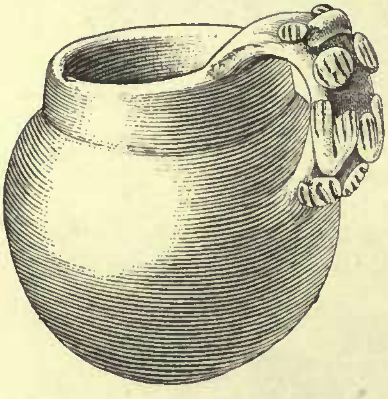

Fig. 108.

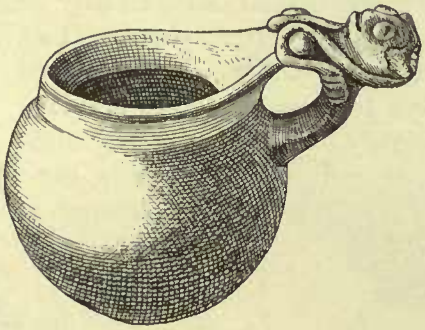

Fig. 109.

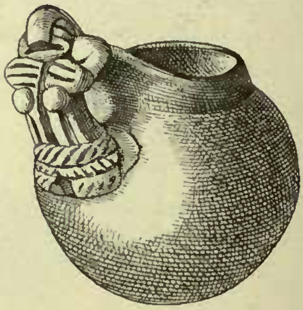

Fig. 110.

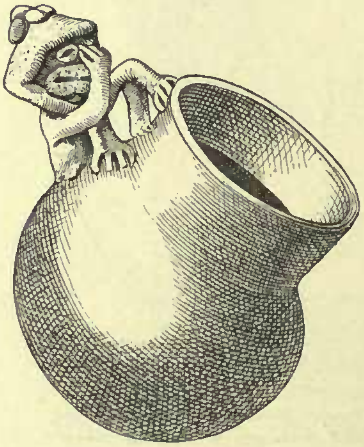

Fig. 111.

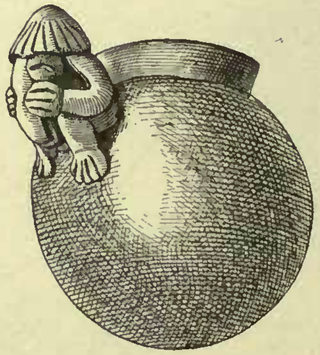

Fig. 112.

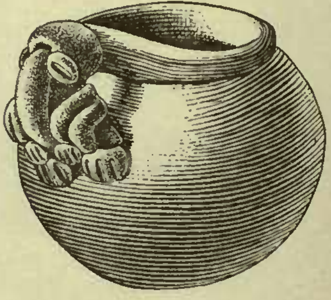

Fig. 113.

Fig. 108.—Cup with zoömorphic handle decoration. Armadillo ware. $^3/_4$
Fig. 109.—Cup with decoration on handle probably representing a human head. Armadillo ware. $^3/_4$
Fig. 110.—Example of anthropomorphic handle decoration. Armadillo ware. $^3/_4$
Fig. 111.—Cup with grotesque human figure serving as handle. Armadillo ware. $^3/_4$
Fig. 112.—Another treatment of the same motive, the nose being developed into a proboscis. Armadillo ware. $^3/_4$
Fig. 113.—Cup with handle decoration suggesting the human form with nose developed into a proboscis. Armadillo ware. $^3/_4$

while the capacity of the largest vases in the armadillo group exceeds 6000 cubic centimeters. The largest of the Chiriquian vases, however, belong to the so-called polychrome group, one vase in the Yale collection holding twelve liters (see fig. 257).

The single handle is usually a vertical loop connecting shoulder with rim and so altered by the application of plastic features as to suggest some animal form (figs. 108–115). Those in figures 109 and 110 are probably human. More often a single effigy, human or otherwise, attached to the shoulder of the cup takes the place of a handle (figs. 111–115). The human effigy in figure 111 is a striking example of the ancient potter's sense of humor and his skill in giving material expression to the same. The figure sits with elbows on knees. The right hand, raised to the nose, partially obscures a broad smile; while the left rests on the rim of the cup. The cone-shaped hat, with four nodes grouped about the apex and secured by a fillet that passes beneath the chin, scarcely hides a short "pig-tail" behind. The conical head-dress may be also seen in figure 112 (as well as in the handled ware). In the former, both hands are held to an abnormally long nose that might well be styled a proboscis. A similar feature is shown in figure 113, but the cone-shaped hat is wanting. These are comparable to the god with a long proboscis illustrated in ancient Mayan codices.

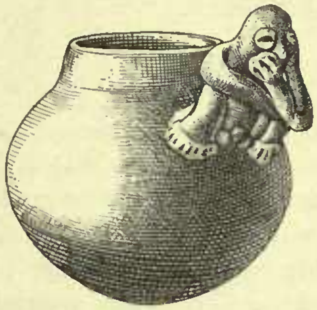

Fig. 114.—Cup with human effigy for handle. Armadillo ware. $^{3}/_{4}$

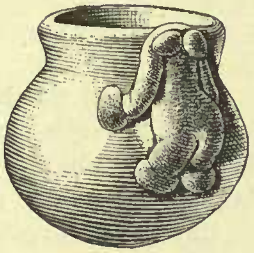

Fig. 115.—Cup with froglike figure serving as handle. Armadillo ware. $^{3}/_{4}$

THE SALMON-COLORED SUB-GROUP.

There is a variety of armadillo ware, usually highly polished and with a salmon-colored slip, the form and technique exhibited in it also differing somewhat from the ordinary biscuit pottery. Some characteristic examples of this variety are brought together in Plate XVI. Mention has already been made of the armadillo represented as rolled up for defense or repose. The head projecting from the shoulder of a salmon-colored vase (fig. *a*) and encircled by two incised fillets may be, perhaps, a conventionalized rendering of the same idea. This might be taken with propriety for a coiled serpent, were it not for the fact that representations of the serpent on Chiriquian pottery are almost wholly confined to one small group, the so-called *black incised* ware of Holmes, where the serpent motive is so all-pervading as to justify a change of the name from "black incised" to the *serpent* group.

Two vases of unusual shape should be described in this connection. The broken one is illustrated (fig. *b*) instead of the complete one, because of its being the more eccentric in form. While the greatest diameter is twenty-six centimeters, the height to the mouth opening is only eleven centimeters. The latter is oval in shape and so small as to admit only two fingers. The specimen not figured is higher and has a somewhat larger mouth opening, but its greatest diameter is less; the handles, also, are not so conspicuous as in the one figured. Each handle is ornamented with a lizard-like form in relief. The bottom of each vessel is flat, quite thin, and smoked by use over the fire. This type of vessel may have served to heat water, on account of the comparatively great area of the surface exposed to fire, from which it could have been easily removed by means of the prominent handles. To empty such a utensil of its contents, however, after its removal from the fire, would seem to have been an awkward undertaking. The type might have served as a foot-warmer had it come from a colder climate. The workmanship in both examples is crude and the paste coarse. Holmes[1] figures a specimen similar to these, except that he describes the bottom as being concave. He also states that the type is common in Peru and occasionally met with in Central America.

THE BLACK INCISED OR SERPENT GROUP.

In point of numbers this is a small group and, with few exceptions, strikingly uniform in style and decoration. The color, where not leached out, is black to brown. With the exception of a large tripod with loop-shaped supports — the largest tripod in the entire collection, with a capacity of 5.6 liters (5600 cc) — the series is remarkably uniform in respect to size, the average capacity being about 125 cubic centimeters. The walls are practically impervious to water.

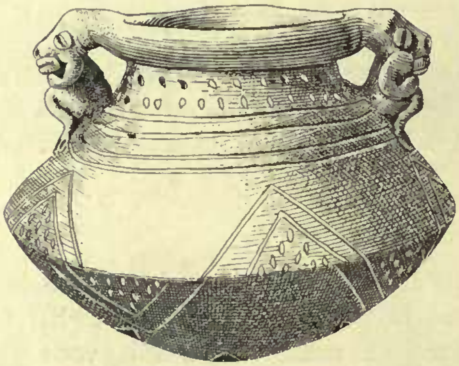

Fig. 116 *a*.

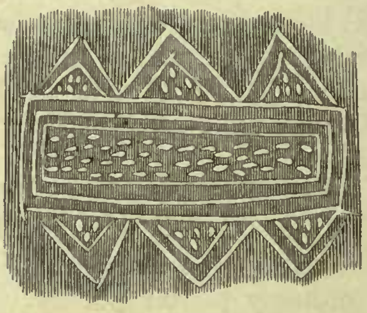

Fig. 116 *b*.

Fig. 116 *a*.—Vase decorated with parallel zigzag incised lines. 1/2; *b*.—Detail of incised pattern decorating the bottom of the vase shown in figure *a*. Serpent ware. 1/2

Some typical examples of this interesting group of ware are illustrated in Plate XVII. A characteristic specimen from Divala is shown in figure *a*. Where they merge into the lip, the vertical handles are crossed by an incised fillet resembling the carapace symbol so common to the armadillo ware. Each side of the vase is decorated by an incised pattern evidently intended to represent a two-headed serpent with forked tongue. The body of the serpent is folded on itself in such a manner as to produce geometric outlines and thoroughly cover the field to be decorated. The deep incisions were made before the paste hardened and were filled with a white substance, probably infusorial earth, white clay or chalk, that stands out in bold contrast to the black ground.

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[1] Op. cit., fig. 88.

In figure *b*, the two-headed serpent is passed entirely around the vessel almost three times. The serpent symbol also survives in the geometric decorations shown in figure *c* (from the same locality), as well as in figures *d* and *e*.

Not all specimens of the black incised group are incised. One of these exceptions is reproduced in figure *f*. It is a vase with large plain handles, which appears to have been used as a receptacle for the white substance that fills the incisions on vessels of this group. The interior of a vase of about the same capacity, belonging to the lost color group, is also smeared with the same white paste.

A vase recalling a Costa Rican (Tres Rios) variety of ware is reproduced in figure 116*a*. Two parallel incised lines, forming a band, describe the circumference in a zigzag course, crossing what might be called the equator at twelve points, and where they meet the lines are sometimes broken. This band is perfectly plain, the punctate areas being the triangular fields each bounded by the band and the equator, six of them above the latter and six below. The two elements in the realistic serpent are here beginning to separate. The same thing is taking place about the neck of the vessel, where there are two plain horizontal bands and a dotted zone above them. Contrary to the general rule, an interesting incised pattern adorns the bottom of this vase (fig. 116*b*). Two plain bands bound a rectangular field. On each of the long sides of the rectangle are three triangles, each bounded on two sides by a plain zigzag band. Only the enclosures, rectangular and triangular, are dotted with incisions. The breaking up of the elements that went to make up a realistic serpent (or serpents) results not only in economy of labor but also in more thoroughly covering the area to be decorated; hence conventionalism has ever been as much the child of economy as of ritual.

The breaking up of the elements that enter into the realistic representation of the serpent is seen also in figure 117, where the shoulder of a small vase is ornamented with a series of triangles formed by the body motive with the body-markings appearing only in the enclosed spaces. This series of illustrations ends with a tripod vase (fig. 118), the body of which is plain. The supports are representations of the fish.

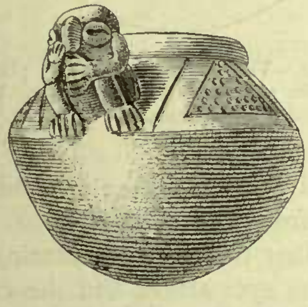

Fig. 117.—Small vase with shoulder decoration consisting of a triangular treatment of the serpent motive. Serpent ware. $^{3}/_{4}$

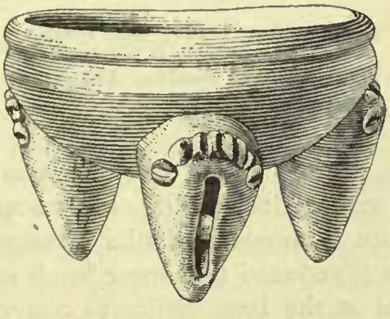

Fig. 118.—Tripod bowl with supports representing a fish. Serpent ware. $^{1}/_{2}$

THE HANDLED GROUP, UNPAINTED.

There is a comparatively large group of unpainted ware that is related on the one hand to the salmon-colored variety of armadillo ware, and on the other, to the handled group that is painted. The paste used in its manufacture may be either coarse grained or fine grained, but is always tenacious. The exterior of nearly every piece is blackened by smoke and soot. The vessels were not suspended over the fire, the convex bottom over a considerable area being generally not discolored, as if it had rested on ashes or sand while the fire burned on all sides.

The vessel illustrated in figure 119 is coated with smoke, soot and grease, inside and out, which may account for its remaining absolutely impervious to water after a test of twenty hours' duration. Life symbols adorn the otherwise plain vertical handles, and the shoulder is ornamented with four neatly incised, X-shaped patterns, two on either side. This vessel has a capacity of 575 cubic centimeters. Another type of handle, one characteristic of the painted handled ware, is shown in figure 120. It consists of a loop horizontally applied to the shoulder. Two plain nodes for eyes or ears indicate a life form.

A series typical of those that are related to the armadillo ware may be seen in Plate XVIII, and appropriately enough each example is ornamented with armadillo motives. The paired handles in figure *a* form raised horizontal loops, fitting close against the neck of the vase. By the application of nodes and fillets the handle is transformed into the head, shoulders and forelegs of the armadillo. To make sure of its identity, the carapace symbol is freely used.

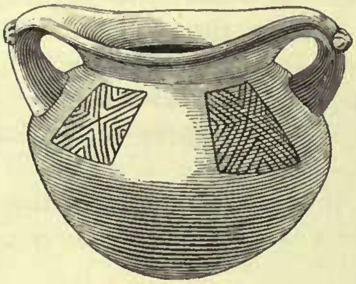
Fig. 119.—Vase bearing life symbols on handles and incised X-shaped ornamentations on shoulder. Unpainted handled ware. ⅓

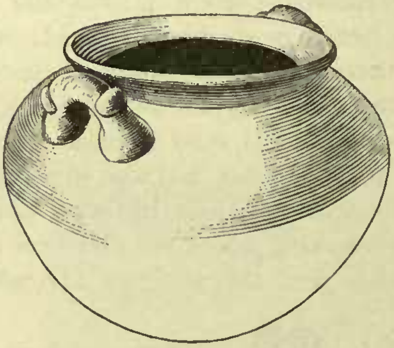
Fig. 120.—Vase with horizontally placed handles representing animal forms. Unpainted handled ware. ⅓

Figure *b* shows a similar arrangement, except that the nose is wanting. The handle is reduced to a mere knob in figure *c*, but the eyes above and the carapace symbol at the base suffice to convey the idea intended. In other words, it shows a ventrally placed carapace symbol resembling those in figures 82 and 83. In figure *d* the horizontal loop handle is reduced in size and somewhat removed from the neck of the vessel. Carapace symbols ornament its summit and bases. The same is true of figure *e*, except that three single fillets are used instead of three pairs, the handles being also reduced in size and changed so as to occupy a vertical position. In figure *f* the vertical handles unite shoulder and rim. They are simply plastered over with carapace symbols. Two perforated nodes near the top represent the eyes. On the opposite handle, a median hole just below the eyes may be intended for a mouth or nose.

The remaining vessels of the unpainted handled group are related rather to the painted handled group than to the armadillo ware. Examples are given in Plate XIX. Figure *a* represents one type. The looped handles placed horizontally are so treated as to indicate life forms. Three incised nodes represent the mouth and eyes, the latter being quite far apart, and incisions at the bases suggest either feet or the carapace. The same style of handle with slight variations is repeated in figure *b*.

What appears to be two pairs of handles in figure *c* is in reality but a variation of the type of handle shown in two preceding figures (see Pl. XVIII, figs. *a* and *b*). The head is an incised node on the rim. The forelegs are set rather far apart, so as to look like a pair of handles. The eyes are placed on the shoulders and the knees are marked by carapace symbols. The same form of handle is repeated in other specimens, with gradual elimination of life symbols.

The decorative element on the handles shown in figures *d* and *e* may represent either man or monkey. The body, also, of the vessel in figure *d* is ornamented by a row of flattened pellets, forming an irregular circle at the level of the bases of the handles. This circle is interrupted at one handle but drops suddenly and passes beneath the handle on the opposite side. These flattened pellets probably represent the body-markings of the alligator. A similar motive is found on pottery from the highlands of Costa Rica, ancient pueblo of Curridabat, where representations of the alligator or parts thereof predominate. The bottom of the vessel is flattened over a limited area.

The vase reproduced in figure *f* has a similar flattening of the bottom. The base of each vertical handle is bifurcated, making a combination handle, conforming to both the horizontal and vertical patterns. One of the manlike or apelike figures holds his hands at the top of his head, while the hands of the other are held to his chin.

PAINTED WARE.

The painted pottery found in Chiriqui is divisible into about ten more or less distinct groups (see p. 66). While some of these classes are large, examples of others are so rarely met with as to suggest the possibility of their being importations. While the basis of classification generally rests on an ensemble of characters rather than on some one distinctive feature, the lines of demarcation are easily traceable by any one at all familiar with Chiriquian ceramic art.

As might be anticipated, the introduction of color as an ornamental factor often tended to minimize the importance of incised and plastic features as well as of form and finish in general.

As a result, decorative motives derived from the armadillo and the serpent, which have given their names to two important groups of unpainted ware, are practically never executed in paint; while incised or plastic motives derived from the alligator, whose name is applied to a characteristic group of painted ware, are equally rare. It is likewise true that no class of ware surpasses the armadillo group in general excellence of modeling, while the poorest examples in this respect are to be found among the lost color vases, which are particularly lacking as regards interior finish.

A comparison of the various classes of painted ware among themselves brings out some striking differences that apply even to the manner in which a given decorative motive is to be expressed. The motive derived from the dorsal view of the alligator, for example, is employed extensively in both the alligator and the lost color groups and likewise occurs in the white line group; but the artist's expression of it is always consistent with the class in which he is working, and it thus becomes not only a distinguishing badge but also one of kinship. The same thing may be said for the motive derived from the profile view of the alligator, its particular guise depending on whether it is intended for the polychrome or the alligator ware.

The various groups of painted ware differ among themselves, also, in respect to the quality of the paste, the prevailing vase forms, the nature of the slip or the ground color, the method of producing the designs and the number and kind of colors thus employed. In groups with but a single ground color and no delineating color, there is usually a supplementary incised or plastic ornamentation. The handled ware owes its identity to the absence of legs and the form of lip and handles rather than to the presence of a paint that is also employed on tripods of the fish group.

Various shades of pale yellow and of red were the prevailing ground tints. While the ground is generally uniform for a given vessel, in the lost color group it often consists of two colors, the neck and bottom being red and the shoulder a pale orange. The delineating colors include various shades of red, two kinds of black, a white and a dull purple, the last two being particularly rare colors. Red occurs in at least three hues and is always a permanent color, serving as a ground and also as a delineating color. Black of two kinds was freely employed both as a ground and as a delineating color, the latter permanent, the former thin and fugitive. The rare and permanent purple probably comes from a non-ferruginous metallic oxide. The ancient potters of Chiriqui were masters of the brush in three distinct methods of painting: (1) The usual method of producing a figure or pattern was by the direct application of one or more delineating colors — red, black, white, and in one variety of ware, an additional color, purple. The red and purple were frequently employed as mass colors outlined in black; (2) The lost color process was confined to a single large group. It consisted of tracing the design in wax over the ground color, the application of a solid coat of black over the area to be ornamented, and immersing the vessel in hot water which melted the wax, removing with it the black from the design and thus leaving the latter in the color of the original ground; (3) Sparing the figure out of the ground was seldom employed, occurring only in the alligator and the kindred polychrome ware. The few examples of this technique evince much skill and ingenuity.

THE HANDLED GROUP OF PAINTED WARE.

This is called the handled group by Holmes, and yet in the Yale collection thirty out of the three hundred and ninety vessels belonging to it have no handles. While all bear paint marks, the surface is never completely covered with paint. With an ample brush, red paint is applied, usually in horizontal encircling bands, from which two or three loops or triangles rise to the neck on each side of the paired handles; or the paint may be put on in a series of daubs or short streaks. In rare instances it completely covers the exterior up to the level of the collar or neck. Seldom is the outer surface of the flange or lip painted, but its inner surface is always painted either wholly or in part. The handles are entirely free from paint.

The character of the unpainted areas would seem to indicate that a slip was rarely and sparingly used. The finish of the interior is even more neglected than that of the exterior. The walls of the vessels are generally much thicker at the bottom than elsewhere, a character serving at least one useful purpose, since it affords a certain degree of stable equilibrium to a form that would otherwise be unstable. The bases are more or less rounded and never supplied with annular supports. It is true that many vessels of similar material, form and finish are mounted as tripods; but these are placed for convenience with the tripod or fish group. It will be seen later that those mounted as tripods are much smaller than their counterparts in the handled group, and the type of handle is also different.

The handled ware proper may be divided into sub-groups depending on the style of handle. In one of these the paired handles are placed vertically, uniting lip with shoulder, a form that is common also to the armadillo ware. In another the handles are attached to the shoulder of the vessel alone and in a horizontal position, a type that is common to the unpainted handled ware. Single handles, either of the vertical type or that spanning the orifice from lip to lip, are extremely rare. Animal forms attached to the shoulder of the vessel sometimes take the place of handles and, as has already been said, handles may be entirely wanting.

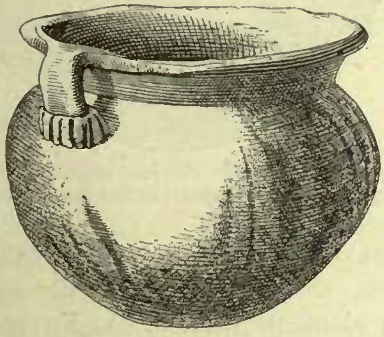

Fig. 121.—Vase with carapace symbol ornamenting base of handles. Painted handled ware. $^{3}/_{8}$

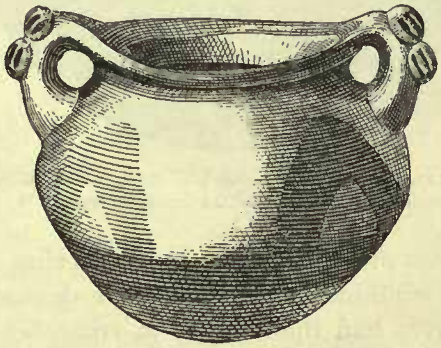

Fig. 122.—Vase whose handle decorations represent either fin or carapace motives. Painted handled ware. $^{3}/_{8}$

The orifice of the vessel is always round, but the character of the lip or flange surrounding it depends upon the type of handle. Where the handle is attached to the shoulder alone, or where there are no handles, the lip is circular also, and every point on its margin is in one and the same horizontal plane. On the other hand, an oval lip carried upward at both ends goes with the vertical handle.

Hitherto the ornamentation has been the work of the sculptor or engraver. We now have to reckon with a new force in the domain of decoration, viz., color or, rather, paint. Whether or not the summary fashion in which the paint is here applied, represents the beginning of a new art era or a decadent phase of the same, it is not within the province of the present study to determine. It is, however, worth while to note the effect of the painter's work on that of the sculptor and engraver, where all three are combined in one whole. In the first place they do not overlap. The work of the sculptor is confined to handles. These are never painted. The engraver has chosen the shoulder and neck or collar for his field of operations. The incised areas are never painted.

A study of the handle ornaments of this group reveals the fact that the armadillo motive is one of the principal threads that bind together practically all classes of Chiriquian pottery, serving an important ornamental rôle full of symbolic and mythologic meaning. It demonstrates, also, that many purely decorative motives had their origin in some life form or in elements thereof. In Egypt this form seems to have been the lotus; in Chiriqui it was the armadillo and, as we shall see later, the alligator.

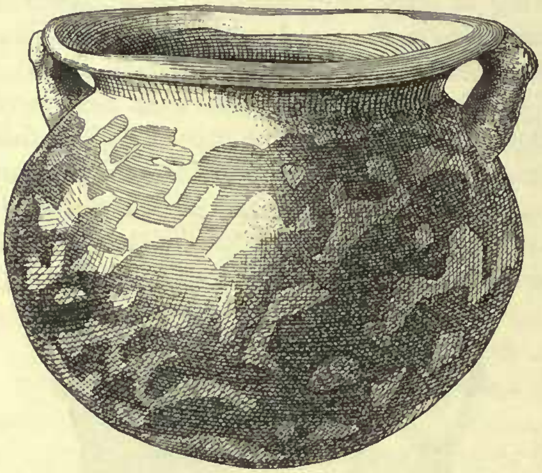

Fig. 123.—Vase with same life form on handles as in preceding example. Painted handled ware. 1/3

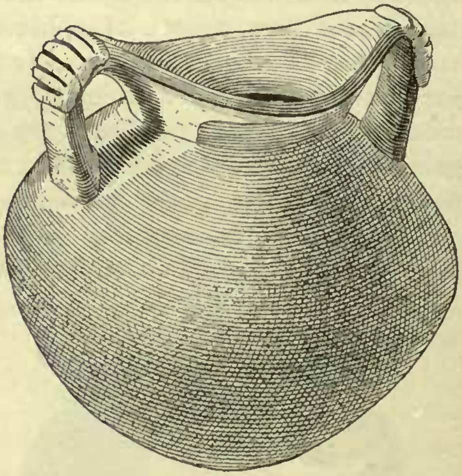

Fig. 124.—Vase with carapace symbol decorating the handles. Painted handled ware. 1/3

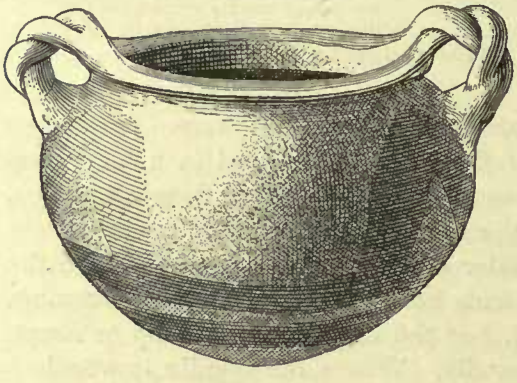

Fig. 125.

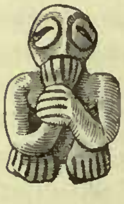

Fig. 126.

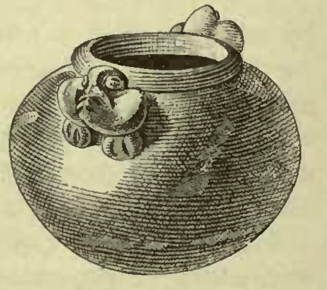

Fig. 127.

Fig 125.—Vase with twisted handles composed of two strands. Painted handled ware. 2/5
Fig. 126.—Detail of shoulder ornamentation on vase shown in Plate XXI, figure *h*. Painted handled ware. 1/2
Fig. 127.—Vase with life forms, probably human, serving as handles. Painted handled ware. 1/3

The familiar carapace symbol appears in figure 121. The life forms in figures 122 and 123 are probably identical, although the nodes may be fin motives instead of carapace motives. The vase reproduced in the latter figure is one of the largest vessels of the handled group, having a capacity of three liters. An unmistakable carapace symbol appears in figure 124, which represents a large vase having a uniform coat of red paint covering the entire exterior with the exception of the handles and lip. The inner surface of the latter leading down to the orifice, however, is painted.

The two prevailing types of handle are shown in Plate XX. In one case, the handle is vertical, connecting shoulder and lip (figs. *a–d*); in the other it is placed horizontally, both ends being attached to the shoulder (figs. *e–h*). In both types, it is almost always ornamented with nodes and fillets — life forms or elements of the same. The characteristic method of applying the red paint in bands, loops and arches is also well illustrated in this plate. The horizontal type of handle accompanies a circular lip. Where the neck is of sufficient length it is generally adorned with incised patterns, as seen in figures *f* and *h*. When the neck is short the shoulder may be incised instead (fig. *g*).

Two strips of clay are twisted on each other to form the handles in figure 125. This type of handle is common to the tripod group (see Pls. XXII–XXIV). It was evidently derived from a life form, probably the armadillo, as pointed out on page 64.

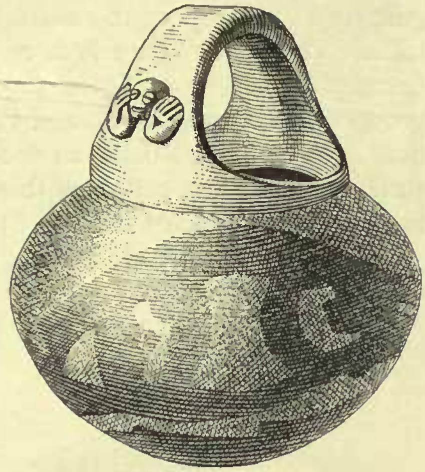

Fig. 128.—Vase with single handle spanning the aperture. Painted handled ware. 2/5

The vertical handles in Plate XXI are converted into human or apelike forms by the addition of plastic features. The proboscis noted in certain examples of the armadillo ware (see figs. 112 and 113) reappears in figure *a*. Each handle in figure *b* represents twins. Two grotesque forms attached to the shoulder take the place of handles in figure *g*. Here again the shape of the lip, not being affected by connection with a handle, is circular and the shoulder is ornamented with an incised pattern (see Pl. XX, fig. *g*). In figure *h*, both hands cover the

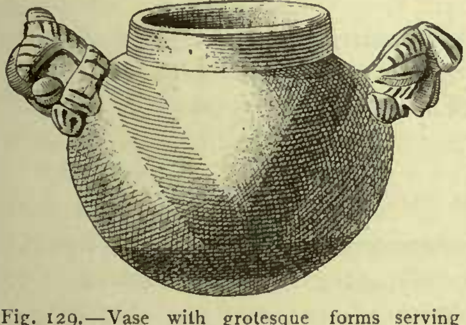

Fig. 129.—Vase with grotesque forms serving as handles. Painted handled ware. 1/3

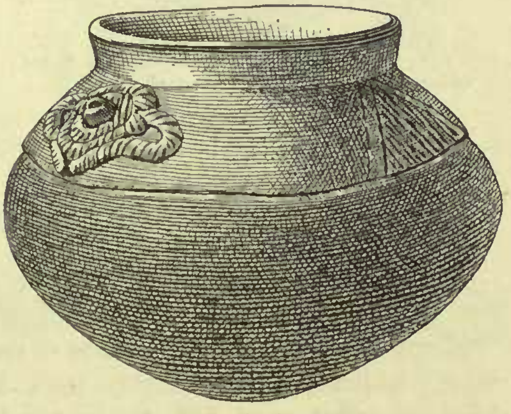

Fig. 130.—Vase with plastic decoration suggesting the carapace motive. Painted handled ware. 2/5

mouth. The figure on the opposite side (fig. 126) holds the right hand to the chin and supports it there by grasping the wrist with the left hand.

The life forms in figures 127 and 128 are probably human also. The handle in the latter vase is a single loop spanning the orifice. In figure 129, the two grotesque forms attached to the shoulder take the place of handles. They are unlike. One is the armadillo with tip of nose hidden behind the forefeet, and with two incised fillets representing the carapace, one applied longitudinally beginning at the top of the head, and the other, horizontally about the back of the neck. The other figure is a cross between the human and the ape. The plastic decorative motive in figure 130 is similar to one already noted in the armadillo group of ware (see fig. 97 and Pl. XVI, fig. *a*) — a somewhat reduced and simplified head surrounded by an incised fillet, suggesting the carapace motive. The surface below the collar of this vase is smoked and sooty, a condition common to this group, at least seventy-five per cent of which have been used over the fire.

As has been already stated, not all vases of the handled ware have handles, figure 131 being an example. It has a well-developed collar. The body is given a solid coat of red paint, while neck and collar were left untouched. Another vase without handles is reproduced in figure 132. The arched panels on the sides are not unlike those seen in the lost color ware.

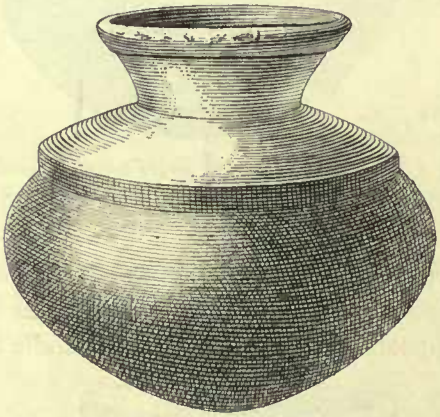
Fig. 131.—Vase with well-developed collar but without handles. Painted handled ware. 1/4

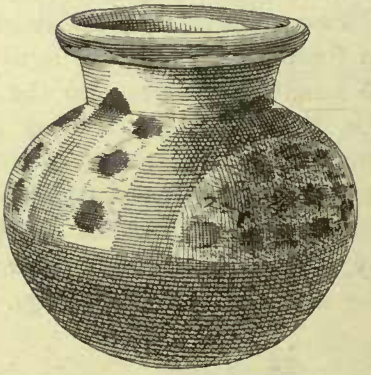
Fig. 132.—Vase without handles. Painted handled ware. 1/2

THE TRIPOD OR FISH GROUP.

Mention has already been made of the affinity between this group and the handled ware, which consists chiefly in a similarity of paste, scant use of slip, the kind of paint used and the method of applying it, and the fact that a large majority of vessels in both groups bear sooty incrustations.

There are also some fairly well-marked differences to be noted. The bowls of the tripods average smaller than those of the handled group. With few exceptions, the type of rim or lip is quite different, the typical tripod rim being at all points in the same horizontal plane and recurved outward upon itself. The descent from the outer edge of the rim to the orifice is a gentle convex curve. The orifice is proportionately greater than in the handled ware, with a diameter but slightly smaller than the greatest inside diameter of the bowl, the latter usually being quite shallow.

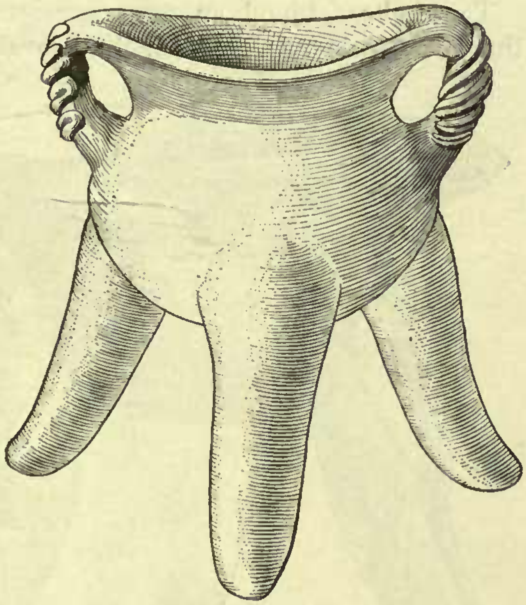

Fig. 133.

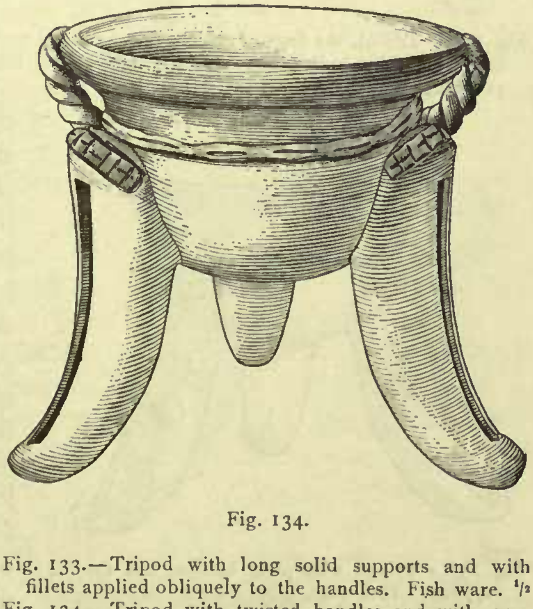

Fig. 134.

Fig. 133.—Tripod with long solid supports and with fillets applied obliquely to the handles. Fish ware. 1/2

Fig. 134.—Tripod with twisted handles and with supports resembling the body of a fish. Fish ware. 1/2

While in the handled group the interior of the bowl is never painted, in the tripod ware this portion is more often painted than any other part, which is explained by the fact that the relatively large mouth opening and shallow bowl render the interior visible at all points. Many of the tripods are not painted at all. These may be said to have their counterpart in the unpainted variety of the handled group. On consulting the illustrations, it will be seen that the most satisfactory and elaborately wrought tripods are among those that are not painted.

Twisted vertically-placed handles are the rule among the tripods. Only two examples of the twisted handle were to be found in the handled group. On the contrary, there are very few tripod handles wrought into realistic animal forms, a style of handle very common indeed in the handled group. In the latter ware, neck ornaments are rare. Among the tripods, especially those unpainted, the neck is almost always decorated with fillets or incised patterns, the usual ornamentation being two long incised fillets, each reaching half-way around the neck. The ends of these fillets do not touch, leaving a blank space underneath each handle. The handles were put on first, then the fillets, and lastly the feet.

The tripod supports are very different from those of the armadillo ware. They are much longer and, on account of their length, are spreading, so as to prevent the vessel from being easily overturned. The supports are rarely solid. Figure 133, therefore, represents an exception to the rule, not only in regard to the supports, but also in the shape of the rim. The fillets applied obliquely to the handles are life motives, and form a link in the series that includes handles with horizontally applied fillets on the one hand, and those that are obliquely incised or twisted on the other (see Pl. XIII, figs. *a*, *b* and *e*; Pl. XXII, figs. *e* and *f*). As far as Chiriquian art is concerned, all may have been derived from the armadillo carapace.

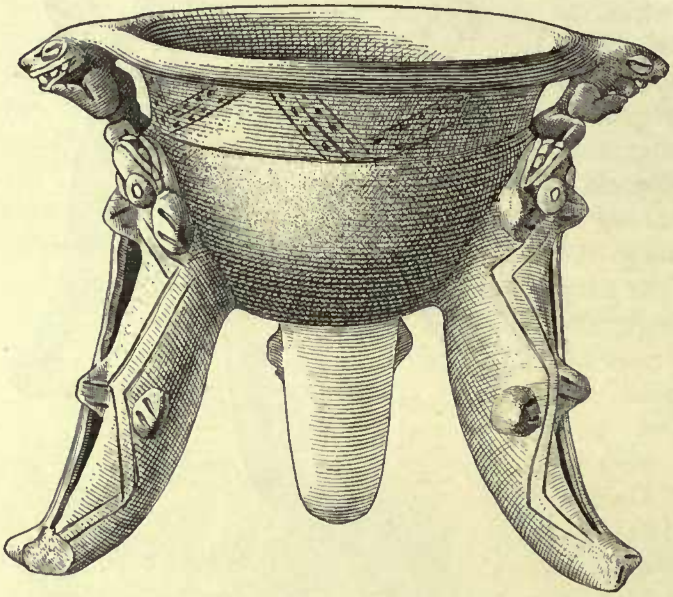

Fig. 135.—Tripod, the legs of which are realistic representations of the fish. The half-human monsters serving as handles may represent the jaguar-god. Fish ware ½

The hollow tripod supports are generally provided with long median slits, through which may be seen the movable pellets serving as rattles, one to each support being the rule. The shape of the plain leg is often such as to resemble the body of a fish. A pointed hip (Pl. XXII, fig. *d*) or a lateral flattening at the free end (Pl. XXII, fig. *e*) makes the resemblance even more striking. To aid the imagination further, incisions are made on the pointed hip to represent the mouth of the fish (fig. 134). Two twisted strands form each handle. A fillet incised horizontally and broken at the handles ornaments the neck.

With the addition of eyes and fins, the image is complete, as is the case in figure 135, where pectoral, ventral, caudal and dorsal fins are all present. To save one dorsal fin, the median slit is bridged, while the other dorsal fin is pushed forward to a point almost between the eyes. The mouth is slightly open, showing teeth. Each handle is skilfully fashioned into a monster with human body and head of a bear or jaguar. This may be the jaguar-god, which is described in the chapter dealing with the alligator ware and of which there are fine examples among the gold ornaments. The hands support the lower jaw. The bowl of this tripod is typical for the group, with its shallow bottom, large orifice, and recurved rim, every portion of which is in the same horizontal plane — the urn-shaped bowl par excellence.

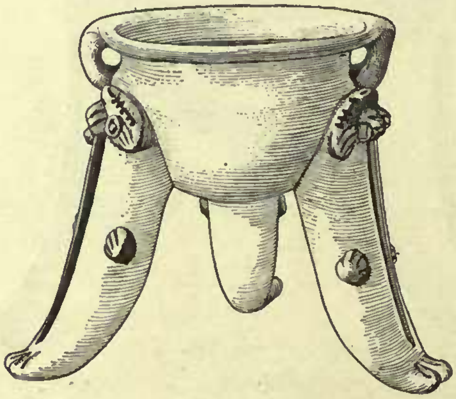

Fig. 136.—Tripod with plain handles and fishlike supports. Fish ware. ⅓

The urn-shaped bowl is repeated in figure 136. The handles, however, are plain. The long median slit leaves room for but a single dorsal fin, which is placed forward between the eyes. Teeth are represented by short incisions at right angles to the slightly open mouth. This vessel is not painted, neither are the two preceding it, but all three are highly polished, particularly within, and are more or less smoke-blackened on the outside.

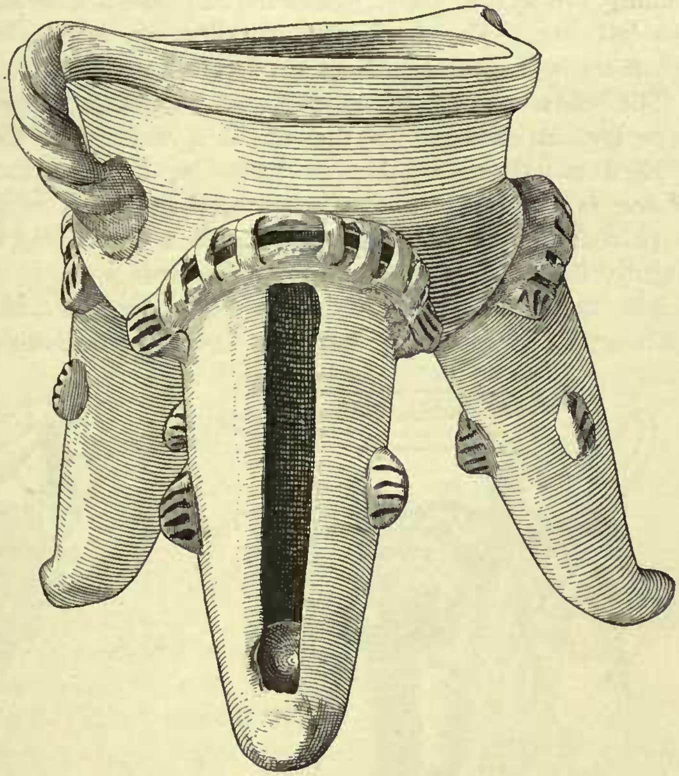

Fig. 137.—Tripod with twisted handles, and supports in which the anal fins are present. Fish ware. $^1/_2$

By comparing the last three illustrations with the two that follow, one sees at a glance the superior form and finish of the unpainted ware. The tripod shown in figure 137 is painted red, both inside and outside, with the exception of the neck and twisted handles. The single median slit is extended to the tip of the nose, leaving no room for even a single dorsal fin. The rather prominent cat-fish mouth is crossed from lip to lip by a number of fillets. The pectoral and ventral fins are present, as is the unpaired anal fin, which is placed exactly opposite the median dorsal slit on each leg, and almost as far removed from the tail as are the ventral lateral fins. This is the only occurrence of the anal fin in the entire collection. Professor F. W. Putnam[1] did not find it in the series he studied, and it is not mentioned by Holmes.

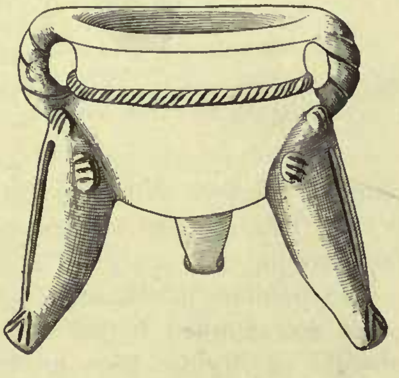

Fig. 138.—Tripod in which the dorsal fin appears as a lump on the nose of the fish. Fish ware. $^1/_3$

The dorsal fin reappears in figure 138 simply as an incised lump on the nose of the fish. The pectoral and caudal fins are represented, but the mouth is wanting. An incised band surrounds the neck, being carried under the handles without a break—an exception to the rule. The handles are incised diagonally, giving them the appearance of being twisted (see fig. 133). The interior and exterior are both smeared with red paint, which, however, does not completely hide the slip at all points.

The fish's mouth in figure 139 is elaborately finished. In the muzzle, on either side of a median plane, there is a pair of openings that widen toward the corners of the mouth. Zigzag fillets span these openings and a pair of fillets surrounds the mouth, the whole of which is easily visible because of the protruding lower jaw. The pectorals and one dorsal fin are represented. The eyes are left out. The neck and handles are plain, but there are traces of paint splotches within and without that were spread over the slip in streaks by rubbing.

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[1] Conventionalism in ancient American art. Bull. Essex inst., XVIII, 162, 1886.

The characteristic tripod rim has completely disappeared in figure 140, which is a typical example of the handled ware plus the legs. The paint is also applied exactly as in that group. The inner surface of the rim leading to the orifice is painted, but the interior of the bowl is not, neither are the handles. A pair of pectoral fins remain to give a fishlike aspect to the legs. The tail is slightly flattened laterally, but not incised.

The vase of which one foot is shown in figure 141 is also of the handled type, differing only from the latter in its comparatively large mouth opening and painted interior. The wide-spreading legs are clumsy and ponderous. Nothing of the fish remains except a single dorsal fin at the upper end of the long median slit.

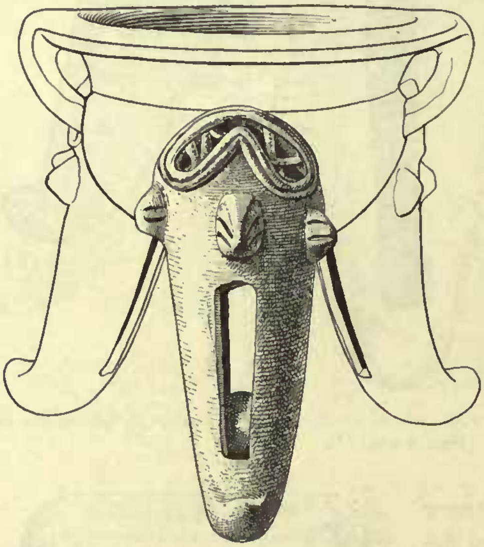

Fig. 139.—Tripod with gracefully modeled supports representing the fish. Fish ware. $^1/_2$

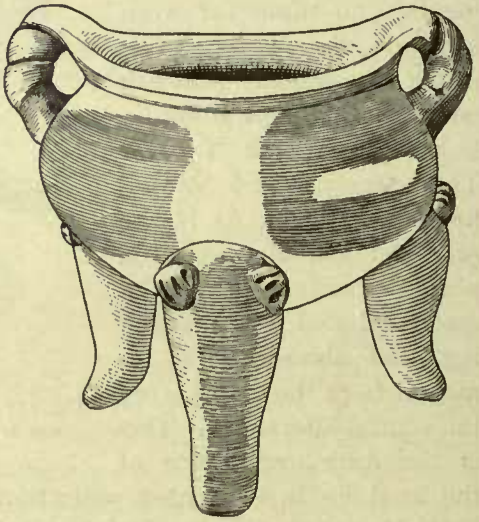

Fig. 140.—Typical example of handled ware with legs, the latter exhibiting pectoral fins only. Fish ware. $^1/_2$

The painters of the tripod group possessed an interesting technique. The red paint was applied to the slip in spots or bands and rubbed down while in the process of drying, thus producing the effect of floating clouds or the flecked surface of the eggs of certain birds. This is seen to best advantage over the surface of the interior, where the red was sometimes simply spattered on and then rubbed in. This spattering treatment minus the rubbing in was practised by the ancient Tusayan potters, fine examples of it being found by Fewkes[1] at the ruined pueblo of Sikyatki.

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[1] Seventeenth Ann. rept., Bur. Amer. ethnol., Pt. 2, 650, 1895—1896.

Specimens of this technique are reproduced in Plate XXII. A characteristic interior for the tripod group in shape and painting is shown in figure *a*. The feet are ornamented with the eyes, mouth and tail fin of the fish. The same technique is seen in figure *b*, the best effects being at the bottom of the interior. The supports are relatively long and spreading, with only pectoral fins represented. In figure *c*, the effect of cross-rubbing the red bands on the legs is visible. At the hip are the head, beak and eyes of a bird, probably the hawk. Just beneath the head are two incised nodes representing the feet. A good specimen of the flecked exterior is seen in figure *d*. Here the fish form of the foot is faithfully reproduced without the help of incised lines or relief ornament. The red bands in figure *e* were not rubbed while in process of drying, and the vessel is figured here by way of contrast; the interior, however, is characteristically flecked. The unpainted feet represent the fish again, the only feature emphasized being the tail fin. A good example of the diagonally incised handle that may be looked upon as a connecting link between the horizontally incised and the twisted handle is reproduced in figure *f*.

A series of tripods with fish supports is given in Plate XXIII. All are blackened by soot and smoke, and only one (fig. *f*) bears any trace of ever having been painted. Mouth and fins are indicated in all. Each fish in figure *a* has both a dorsal and a ventral median slit. By this means, light is let in, making the movable pellet more conspicuous. The weight is also reduced. Although large, they are of graceful outline and, by the addition of incised nodes and fillets, represent the fish in truly realistic fashion. The teeth are reproduced by zigzag incisions. The neck of this graceful urn-shaped vase is adorned with a series of six scrolls, below which runs an incised fillet, broken at the handles. Each of the handles is formed by three twisted strands.

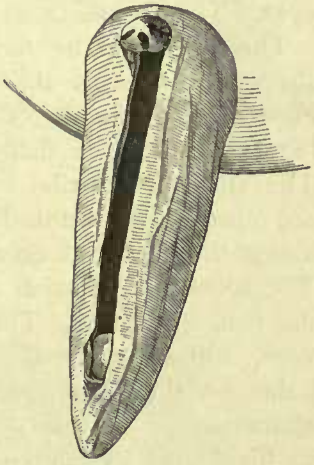

Fig. 141.—Tripod support, the only ornamentation being a single dorsal fin. Fish ware. 1/3

The dorsal fins are generally sacrificed to the dorsal slit, but this is sometimes avoided by bridging the slit, as in the foregoing case. There is no such bridge in figure *b*, so that the second dorsal fin is placed forward between the eyes, and the first dorsal rests on the tip of the nose. The mouth is represented in a summary way by means of two parallel incisions. Pectoral, ventral and caudal fins are present. The ornaments on the neck consist of foot symbols and an incised fillet.

Especially noteworthy are the highly curved, fishlike legs of figure *c*. Both dorsal fins are sacrificed here, but pectoral and ventral fins are present. The caudal fin, though distinctly forked, is not incised. The slightly open mouth is formed by fillets, and into the opening are stuck pellets for teeth. The incised band about the neck of the vase resembles the carapace symbol. Each handle is made of three twisted strands. The interior of each hollow leg is covered by a beautiful grooved pattern.

An unusual type of tripod is reproduced in figure *d*. The paste and exterior are those of the armadillo ware, but the shape is unique. The long neck is cone-shaped and the plain handles are angular. It is placed here because of the fish supports. Only the pectorals and the caudal fin remain. The eyes are omitted, the mouth being the feature emphasized. The longitudinally incised fillets about the mouth opening are in parallel planes, so far apart that the mouth has four corners instead of two. The teeth are indicated by incised parallel lines. It will be noted that one foot is immediately below the handle, an exception to the rule, which is that one leg divides the space between the handles about equally on one side, while the other two legs are attached near the handles on the opposite side. Rarely is there a deviation from this symmetrical arrangement of handles and supports, as will become evident from a study of the illustrations. There is another vase in the collection that is even more like the tripods of the armadillo ware as regards paste and form, but it has handles and the legs are long. The eyes reappear in figure *e*, so does the dorsal fin, which is slightly forward of the eyes. The mouth is an incised fillet.

There seem to be certain general rules governing the use of life forms as tripod supports. One is that all three should represent one and the same animal. Figure *f* shows one of the very few exceptions that prove this rule. Here one leg represents the fish, while the other two are highly realistic alligator forms. The alligator nostrils, eyes and ears are conspicuous. The osseous dorsal plates are represented by annular indentations and there are five cone-shaped prominences along the vertebral column. The saurian attitude of the limbs is well rendered. The second illustration brings the mouth and teeth of the alligator, as well as of the fish, into view. The nose of both alligators is pressed against the rim of the vase, while that of the fish falls considerably short of the same. Spots of red paint on the legs and on the interior of the vase have been spread in a way characteristic of this group, viz., by rubbing. The outer surface of the bowl is so blackened by smoke and soot as to make it impossible to determine whether it was flecked or given a uniform coat of paint. The two alligator supports are slit ventrally and supplied with movable balls of clay. The fish support is slit both ventrally and dorsally and also supplied with a ball of burnt clay.

From his study of Chiriquian pottery, Holmes concludes that "there is a general consistency in the use of life forms." He says: "The fish and other creatures used, although variously conceived and treated, are never confused. When the fish is employed, no features suggesting other animals appear and when the heads of other creatures occupy the upper extremity of the leg all the details refer to these creatures with uniform consistency."

There are some noteworthy exceptions to this rule in the Yale collection, as the accompanying illustrations will show. The legs seen in figure 142 embody a complete fusion of the fish and the human form, the same pair of eyes answering equally well for each. The prominent fish mouth serves as a head-dress for the human figure. The hands rest on the lower part of the chest. The incised pattern below stands for a garment or wrapping. They may be referred equally well to the fish, as the fishlike legs of certain other tripods are incised in a somewhat similar manner. The likeness of this tripod bowl to vessels of the handled group is worthy of note. The legs, handles and neck are not painted, neither is the interior below the orifice.

There is also a fusion or confusion of forms in figure 143. The mouth and the pectoral and caudal fins are faithfully rendered. On the nose, however, and projecting some distance farther forward than its tip, is built up the head of an owl with prominent eyes made of coiled fillets. In a median line, just below the eyes, is a projecting cone, which from its position and shape might answer to the requirements of a dorsal fin as well as of the owl's beak. It is probably intended for the beak only, because of the single incision on either side. The owl's feet appear a little lower down. Each handle of the vase is marked by a median incision, to meet which, parallel incised lines are carried down from either side. On each side, also, and reaching from handle to handle, a broad fillet is attached to the neck and cut by a median incised line running horizontally. But before the horizontal incision was made, the fillet was incised with numerous parallel slanting lines. A series of eye symbols, six in all, is applied just above the fillet, three on either side. None of the relief embellishments are painted, the color being applied only to smooth surfaces. The interior, as usual, is flecked with paint and more highly polished than the exterior.

A vase (fig. 144) that may not be of native Chiriquian workmanship is introduced here because the legs combine fish characters with those of some carnivorous animal. For the fish, there are two pairs of lateral fins and one dorsal fin, but no eyes nor mouth. The other life form is represented by the head and forelegs. This piece resembles a class of pottery in the Keith collection recently found at Paso Real, Costa Rica, not far from the Chiriquian frontier.

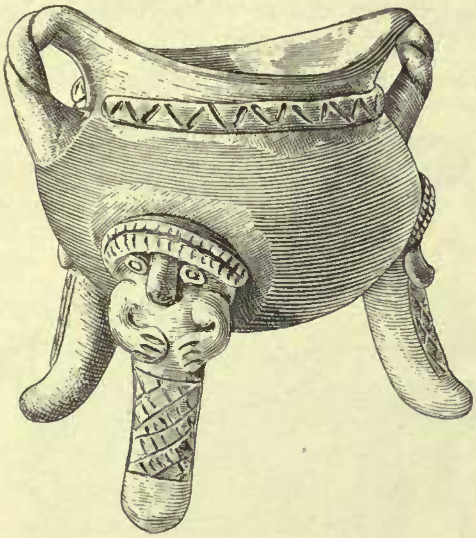

Fig. 142.

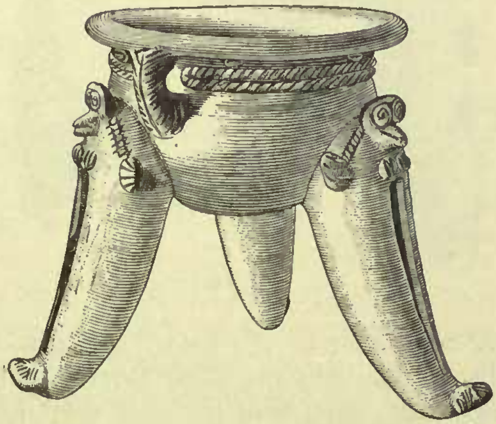

Fig. 143.

Fig 142.—Tripod in which the supports embody a fusion of the fish and the human form. Fish ware. $^1/_2$
Fig. 143.—Tripod in which the supports combine the fish with the head and feet of the owl Fish ware. $^1/_2$

The supports are of uniform diameter throughout the greater part of their length. They are not curved, neither are they spreading. The three rows of slits in each look as if they might have been made after the paste had hardened. There are no balls within. One does find, however, in each leg a quantity of angular fragments of burnt clay, apparently punched from the slits as the latter were being made. They answer all the purposes of the ordinary movable ball. A similar phenomenon has already been noted as occurring in a series of tripods belonging to the armadillo group (Pl. VI, figs. *f*, *g* and *h*). The neck is embellished with an incised band on each side extending from handle to handle. At the ends and in the middle of each band, there is a fin symbol.

Two short bands of clay are applied horizontally to each diminutive handle. The bowl is pointed at the bottom and relatively high, with a distinct shoulder.

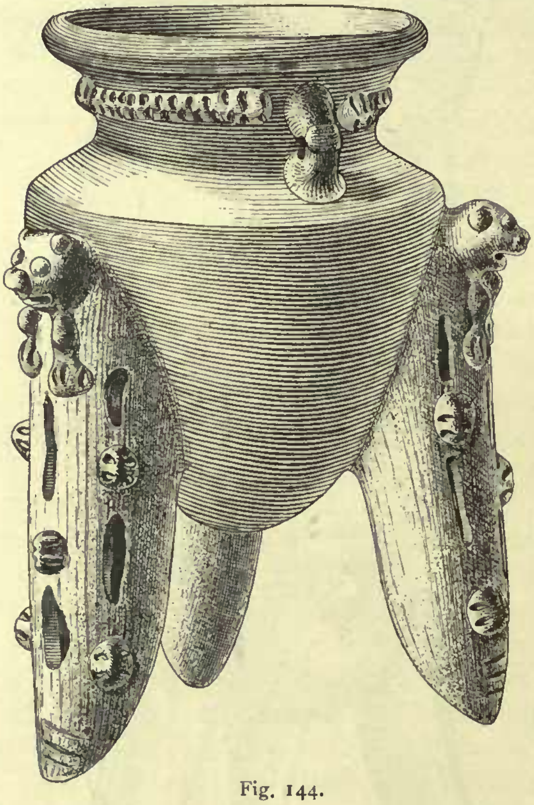

Fig. 144.

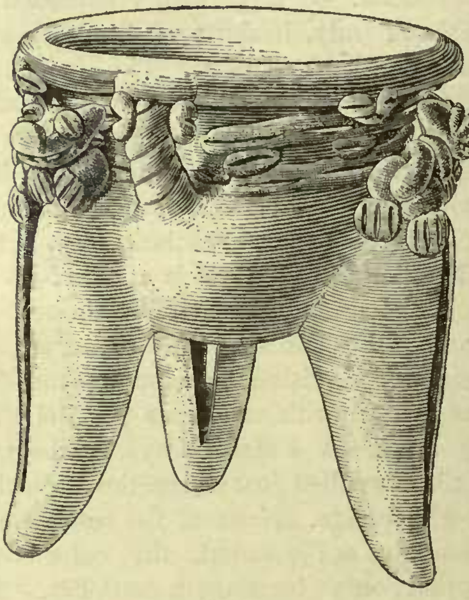

Fig. 145.

Fig. 144.—Tripod in which the legs combine characters of the fish with those of some carnivorous animal. Fish ware. 1/2

Fig. 145.—Ornate tripod with twisted handles representing animal forms. Fish ware. 1/2

A solid coat of red paint covers the inner surface of the neck leading down to the orifice, and the outer surface of the bowl from the shoulder down. The legs and outer surface of the neck and shoulder are pale chocolate — the color of the slip. The paste is reddish brown.

Two other exceptions to the general rule of consistency may be found in Plate XXIV. That the tripod legs in figure *a* are intended to represent fish is indicated by a pointed nose and pectoral fins, but grotesque apelike forms are seated on the nose of each fish. This is the largest tripod in the collection and the only one of this group not provided with handles. The interior is painted with more care than the exterior. In figure *b*, the legs are all alike except that the embellishment at the hip is different in each case — an alligator and two species of bird, one being the owl.

The hip ornament however is, as a rule, uniform for each tripod. In figure *c*, it is a long-tailed beast in the attitude of repose, while in figure *d* it is a bird (the hawk or owl) with coils for eyes. Other coiled fillets adorn the neck of the vase, the scroll pattern being the same as that in figure *a* (Pl. XXIII), only inverted. A very effective representation of the owl, with prominent eyes made of coiled fillets and set in a large head, is shown in figure *e*. The wings and feet are also well rendered. The frog, which was so prominent in the armadillo ware, reappears in figure *f*. Only the eyes, mouth and forelegs are visible.

A vase uniting a number of interesting characters is reproduced in figure 145. The hip ornament is a long-tailed animal with prominent muzzle and teeth, presumably the jaguar. A series of four animal heads adorns the recurved lip of the vase, reminding one of the head ornaments about the margin of the seats in the stone and terra cotta stools, so called (see Pls. IV and XLVI). The decoration on the neck consists of two incised bands on either side (from handle to handle), with a row of eye symbols between. The twisted handle is also supplied with eyes, apparently to emphasize the fact that a twisted handle is a life form (see Pl. XIII, figs. *a*, *b*, *e*; and figs. 125, 133). The Chiriquian artist was seldom guilty of making too free use of decorative features. He rather overstepped the limits of good taste, however, in this one instance.

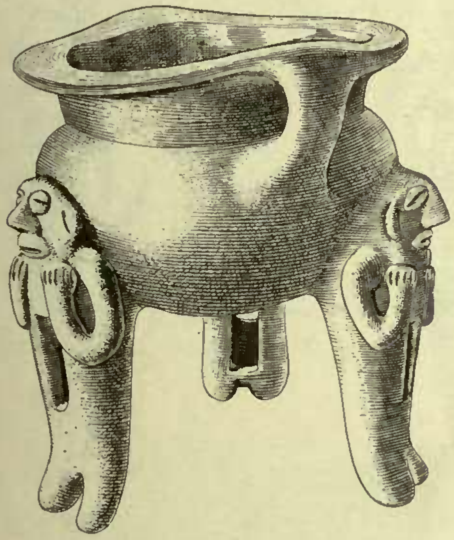

Fig. 146.—Tripod in which the supports are modified to represent the human form. Fish ware. ¹/₂

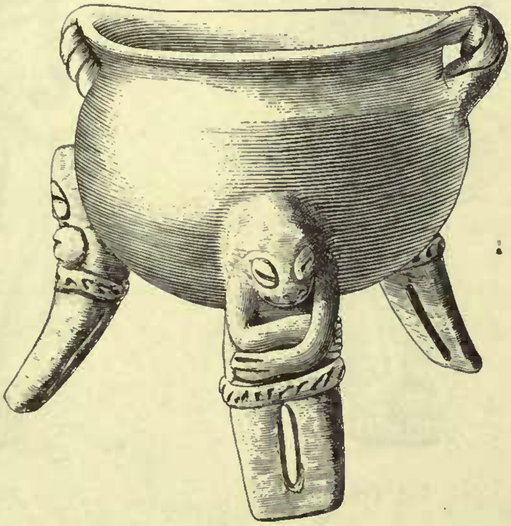

Fig. 147.—Tripod with supports representing the human form. Fish ware. ¹/₂

The human form does not seem to have been a particularly favorite subject with the ancient potters of Chiriqui. Judging from the few examples at hand, the results were often humorous but seldom realistic or artistic, and in their work it is frequently impossible to distinguish man from the monkey. There is no doubt, however, as to the meaning of the tripod supports in figure 146. All three are alike — short legs, long body, arms flexed at the elbows bringing the hands to the chest, large face and nose and small cranial capacity. The vessel is flecked with paint both inside and outside. The hollow bodies may once have contained movable balls.

The tripod supports shown in figure 147 are solid. The human legs are indicated by a slit, which, however, does not separate the feet. An indented band surrounds the loins. The arms are rudely fashioned and variously disposed in the three figures. The paste of this tripod is black, but bleached on the surface, which is faintly streaked with red.

Figures 148 and 149 represent supports from two different tripods which are apparently the work of the same potter. The fusion of the feet, the short legs, long body and occipital flattening of the head are all characteristic. In each, there is a praiseworthy attempt at rendering the human ear. The nose is prominent; the arms, with one exception, are molded with freedom, being clear of the body for the greater part of their length; the number of fingers and toes ranges from seven to four, the artist making no effort to be exact in this respect, but striving rather to produce the effect of the foot or hand as a whole. In one case, the knees are marked by short bands of clay. A somewhat similar technique is exhibited in another tripod support (fig. 150), except that the arms and legs are longer and the head can scarcely be called human. One hand rests against the chin. The upper part of one arm has been lost.

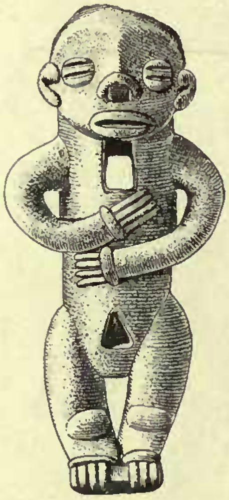
Fig. 148.

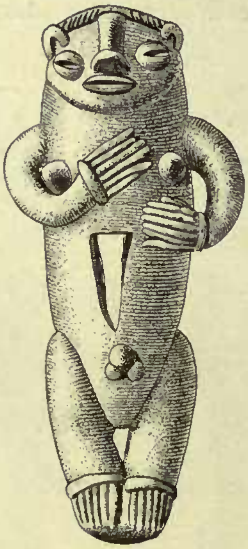
Fig. 149.

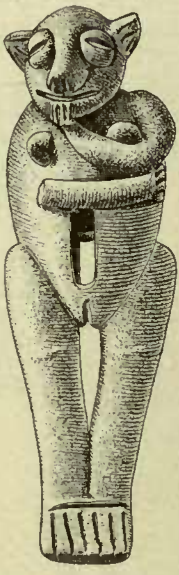
Fig. 150.

Fig. 148.—Tripod support representing the human form. Fish ware. 1/2
Fig. 149.—Similar example from another tripod. Fish ware. 1/2
Fig. 150.—Tripod support exhibiting similar technique, but head of the figure is scarcely human. Fish ware. 1/2

One small tripod and a small vessel with annular base are reproduced here, although quite different in shape from the characteristic tripods of this group. The paste and painting, however, are common to this ware. In figure 151, the legs are short and solid. The bowl is shallow, with paint marks inside and outside, but is not provided with neck or handles. Fish and crab motives extend half-way round the bowl just below the rim. Another vessel in the series is fundamentally the same, but with variations in the details of execution. The legs are curved and set closer together, the bowl is angular in outline and not painted inside. The life form on one side of it is probably intended to represent the monkey. The interior of the urn-shaped vessel shown in figure 152 is given a solid coat of red paint; of the exterior, only the neck and the concave bottom are painted. The zone between shoulder and base bears relief ornaments and is finished in a salmon-colored slip.

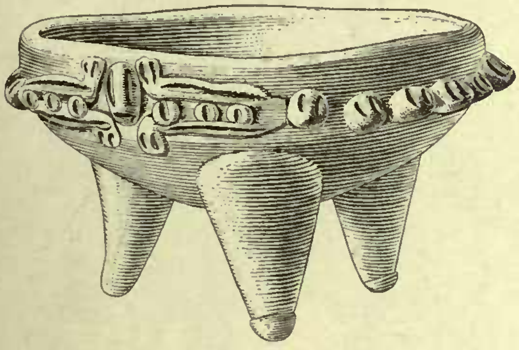

Fig. 151.—Tripod, the shallow bowl of which is decorated with crab and fin motives. Fish ware. 1/2

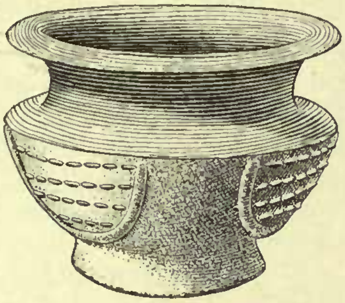

Fig. 152.—Vase with annular base. Fish ware. 3/8

The fish group includes a number of vessels with shallow basins that would seem to be strangers here but for the identity of paste and paint. In these respects they help to link the fish group with the handled ware. One has been led to associate tripods with vertical handles; but in figures 153 and 154, the handles being modifications of the rim, belong to the horizontal type. Some are twisted, others are accompanied by foot symbols, and still others are perfectly plain. Figure 154, an unusual type, shows the only one that does not bear marks of red paint. The legs in all are rudely finished.

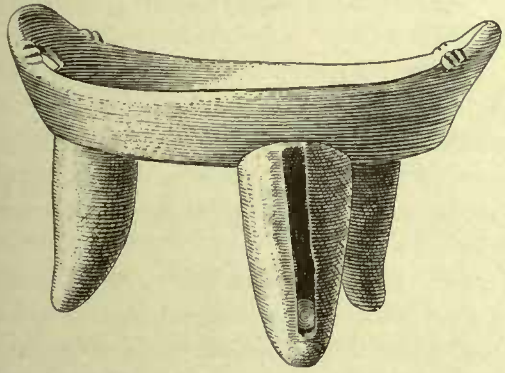

Fig. 153.—Tripod with elongated shallow bowl, and handles suggesting life forms. Fish ware. 1/2

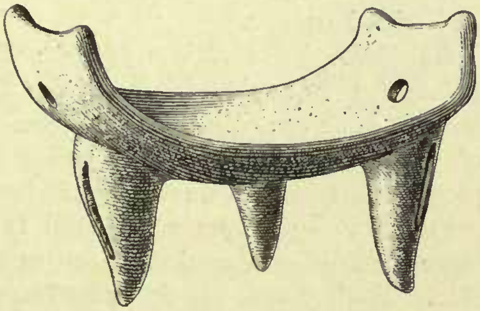

Fig. 154.—Another tripod similar in type, unpainted; from Bugavita. Fish ware. 1/3

There are two tripods in the collection that cannot be referred to any of the groups into which the Chiriquian pottery has been divided. Although found in

Chiriqui, they may be importations, probably from Costa Rica, as the tripod supports resemble certain pieces found by Hartman at Orosi. The example shown in figure 155 is from Caldera; another, not figured, is from El Banco. They are alike in every respect. The paste is friable and rather coarse. The neck ornaments are identical, and the same animal form is embodied in the legs of each. The slip in the one figured is yellow, and large triangular areas painted red alternate with the three tripod legs. The surface of the other is so completely altered by smoke as to obliterate all traces of slip or paint.

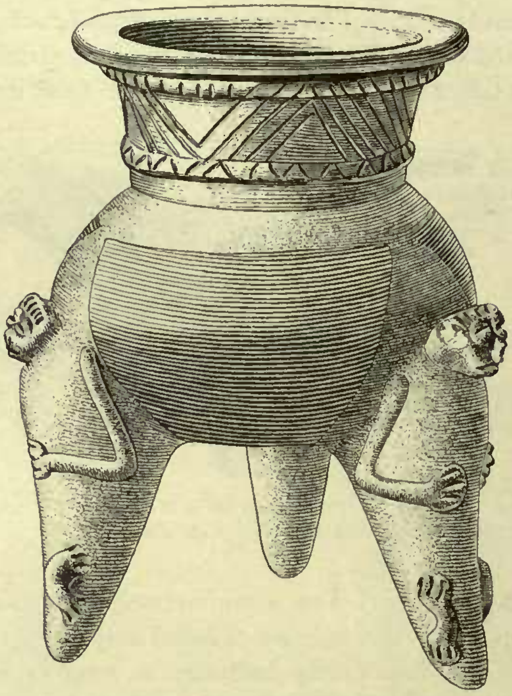
Fig. 155.—Tripod embodying animal forms in the supports; from Caldera. Probably of Costa Rican origin. 1/2

THE RED LINE GROUP.

The red line group is represented by thirty-one vessels with a wide range of form but with certain uniform characters. Faulty firing is indicated by discolored spots on the surface and by cracking of the paste. The paste and slip are of the same color—a light-gray orange. The delineating color is a bright sienna red, resembling the red of the handled and tripod groups.

An idea of the variety of form within this comparatively small group may be gained by consulting Plate XXV. The handles when present are always vertical loops, either paired or single. The supports of tripods are always looped bands of clay. Annular supports, either solid or perforated, are quite frequently employed. At least a dozen pieces bear marks of use.

Figure *a* represents a graceful type of vase, with globular body, from which large, gently curving loop handles rise to fuse with the prolonged lip on either side. Each handle is decorated with an indented fillet applied in the region of the sharpest curve. Above and below each fillet is a band of red that is also carried along the margins of the lip and handles. There is likewise a painted panel on either side of the body, reaching from the neck to the level of the attachment of the handles with which the panels alternate. The paint is carelessly applied, being allowed to run at some of the corners. The surface is everywhere marked by evidences of handling and use previous to burial. The round spot of paint found on the bottom of a majority of the vases of the red line group is lacking in this one.

By removing one handle and the prolongation of the lip on the same side, one arrives at the form seen in figure *b*, the outlines of which are particularly pleasing. There is the same graceful curve to the handle, which is also supplied with an indented horizontal fillet representing some life form. The paint is applied to the handle and the rim as in the preceding, with a painted panel on either side. Between these panels and opposite the single handle are two plain nodes of clay. A large black spot on the outer surface is due to faulty firing.

A different effect is produced by the specimen shown in figure *c*, where the neck is smaller and the lip is prolonged almost horizontally to meet the ascending ramus of the single handle. On the neck, opposite the handle and protected by the projecting lip, are nodes and fillets applied so as to reproduce the human features — ears, eyes and nose. At the base of the neck there is a slight beading. A pattern painted in red lines covers the upper half of the body on either side, and the bottom is painted red.

A representation of the vases without handles or supports is given in figure *d*. The margin of the rim is marked by radiating, straight-line incisions, inside of which is a band of red paint. Another band of color encircles the body in the region of its greatest diameter, and the customary large round spot of red adorns the bottom. The walls are thick and not carefully worked over the inner surface.

The characteristic looped tripod foot is shown in figure *e*, a specimen from Caldera. Indeterminate life forms are applied on opposite sides of the body, the upper half of which is also adorned with a ladder-like zigzag pattern in red encircling the vessel. The walls are thin and badly cracked.

The tall ewer-shaped vessel reproduced in figure *f* is unique. It may have served as a drum. A drumhead could have been stretched over the aperture and made fast to the prominences that surround the neck. The bell-shaped base is not perforated. A slip covers the interior of the mouth opening to a depth of three centimeters and on it two red bands are traced horizontally; a third marks the rim, and two more surround the neck just above the relief ornament. Four horizontal bands encircle the body, one of them being a series of connected triangular areas. The base also is marked by longitudinal and transverse bands.

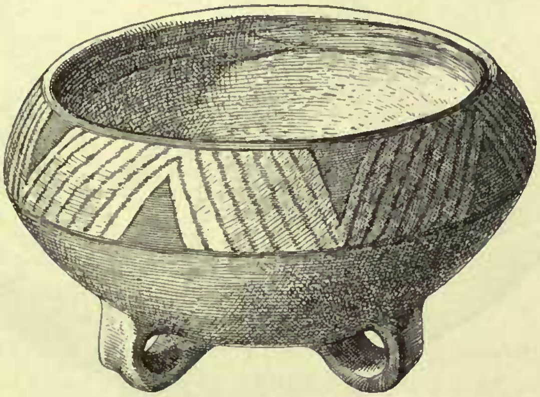

Fig. 156.—Tripod with short looplike supports; from El Banco. Red line ware. ¹/₃

The large tripod reproduced in figure 156 comes from El Banco. A red band encircles the rim, while groups of parallel red lines alternating with small triangular painted areas adorn the shoulder. The walls are thick and firm. A bowl from Gualaca with unusual characters is illustrated in figure 157. The walls are ten millimeters thick. The annular base is low and not perforated; its rim and outer surface are painted red. Three broad bands of red are carried upward from the annular base to the rim at the aperture, which is also adorned with a band of the same color. The three alternating fields are partially filled in with red lines, to some of which comblike patterns are attached. Contrary to custom, the interior of this shallow open-mouthed bowl is undecorated, except by a spattering of paint, which may or may not be intentional.

When the vessels are shallow, the painted decoration is confined to the upper rim and the interior, where it would be the most easily visible. Figure 158 is an example. The annular base or foot is pierced by four unsymmetrical holes. On the interior, a gridiron-like pattern reaches from margin to margin, passing by the center and provided with two lateral projections near each end. The annular foot in figure 159 is taller, bell-shaped and provided with two large sym-

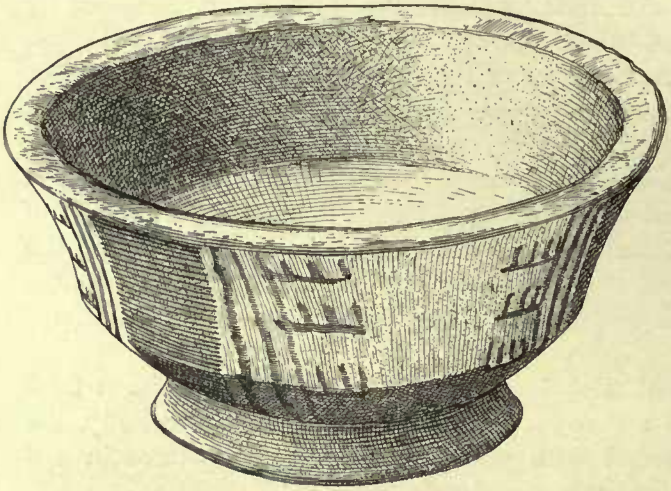

Fig. 157.

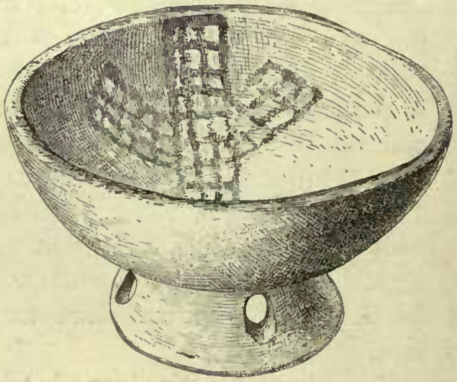

Fig. 158.

Fig. 157.—Bowl with low annular base; from Gualaca. Red line ware. 1/2

Fig. 158.—Bowl with perforated annular base. Red line ware. 1/2

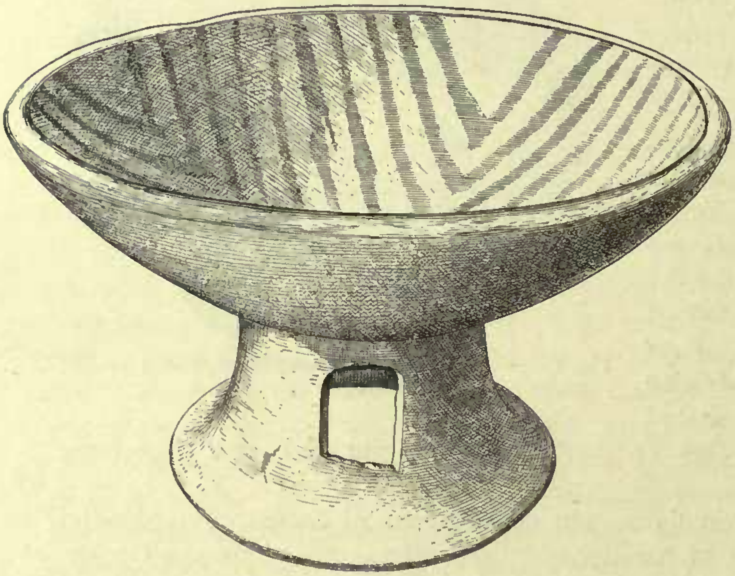

Fig. 159.

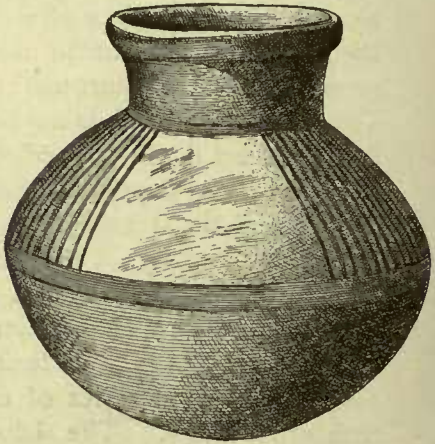

Fig. 160.

Fig. 159.—Shallow bowl with perforated annular bell-shaped base; from El Banco. Red line ware. 1/2

Fig. 160.—Globular vase. Red line ware. 1/2

metrical perforations. A pattern composed of groups of parallel lines meeting at an angle and forming a cross completely covers the interior. This specimen, which comes from El Banco, is slightly discolored by use. Some of the more simple forms consist of globular bodies with neck and rim ; the handles, feet and other plastic accessories being absent. Figure 160 is an example.

THE CHOCOLATE INCISED GROUP.

This is a small group numbering only eight specimens, all tripods. It is not mentioned by Holmes. Reference to the illustrations gives one a good idea as to the homogeneity of the group. The walls are comparatively thin and carefully formed, both as to exterior and interior. The paste and firing are of such a character as to make the vessels practically impervious to water. The chocolate colored coating applied uniformly over the entire outer surface and the visible portion of the aperture is probably in the nature of a slip. The paste is somewhat lighter in color than the slip.

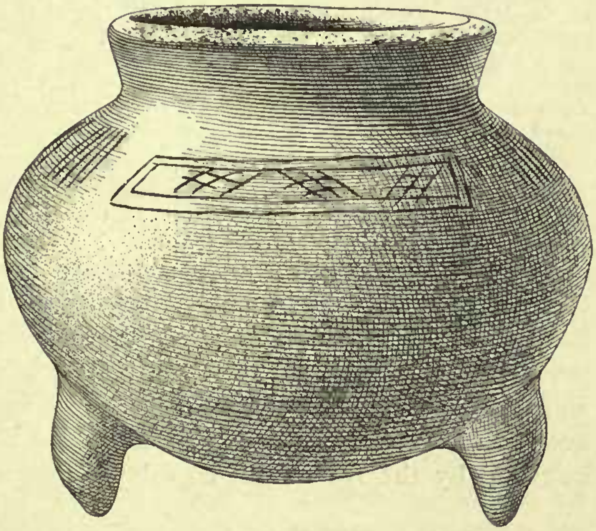

Fig. 161.—Tripod vase with incised shoulder and short hollow supports supplied with pellets but not slit ; from Divala. Chocolate incised ware. 1/2

Another characteristic feature is the incised ornament completely encircling the shoulder on each tripod. The incisions were made after the application of the coloring matter and probably after the firing, the instrument used evidently being either of stone or metal. The incisions are narrow and shallow in some cases and broad and deep in others. The patterns usually consist of three quadrangular fields filled in wholly or partially by cross lines, with groups of parallel vertical lines at both ends of each field (fig. 161). The panels are somewhat lengthened in figure 162 and not accompanied by the groups of parallel vertical lines, while in figure 163 a single unbroken pattern completes the circuit. The latter is one of the smallest tripods in the entire collection, its height being less than four centimeters.

The tripod supports are generally solid, short, straight, pointed pegs. In figure 161, they are slightly curved, hollow and provided with pellets, but not slit. Figure 162 differs from the others in several respects. The body represented is a shallow open-mouthed bowl. The relatively large legs are incised, hollow, perforated, supplied with pellets and so fashioned as to resemble an animal head.

The chocolate incised group resembles a certain class of Costa Rican pottery from Tres Rios. Figures 161 and 162 illustrate ware from a locality twenty-five miles west-northwest of David. A single specimen from the environs of David, somewhat similar to the former, is figured by Alphonse Pinart.[1]

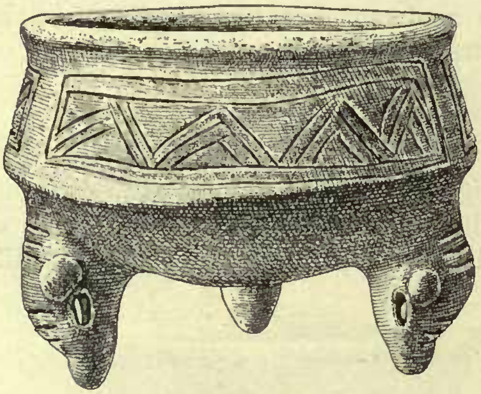

Fig. 162.—Tripod with incised panels on shoulder and short supports representing animal heads; from Divala. Chocolate incised ware. 1/2

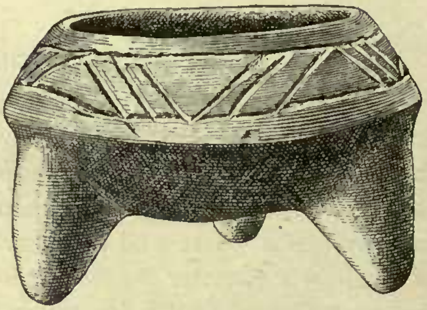

Fig. 163.—Very small tripod with unbroken incised pattern around shoulder, and short solid supports. Chocolate incised ware. 1/1

THE SCARIFIED GROUP.

The scarified group numbers twenty specimens in all. Sixteen are tripods, three have convex bottoms, and one is flat-bottomed. A slightly raised marginal flange in the last-named has preserved the flat bottom from wear. All are covered with a uniform coat of maroon paint, which in most cases is spread over the surface of the interior also. The paint was applied after the scarifications had been made and, as a rule, the scratched areas were not painted. The region bounded by the feet of the tripods is always left smooth.

A majority of the pieces come from a locality twenty-five miles northwest of David, at the head-waters of a stream called in McNiel's notes, Rio Chiriagua. Seven or eight are from Caldera about twenty miles northeast of David, and the large flat-bottomed vessel (see Pl. XXVI, fig. *a*) came from a locality noted by McNiel as being at latitude 8° 34′ N. and longitude 82° 26′ W. of Greenwich, i. e., about eight or ten miles north of David. The pottery of this same group described by Holmes came from the graves of the two other localities, "one near C. E. Taylor's hacienda, north of David, on the slopes of Mount Chiriqui, and the other at Alanje, southwest of David." Specimens of this ware are therefore fairly well distributed over the province of Chiriqui, although found in relatively small numbers.

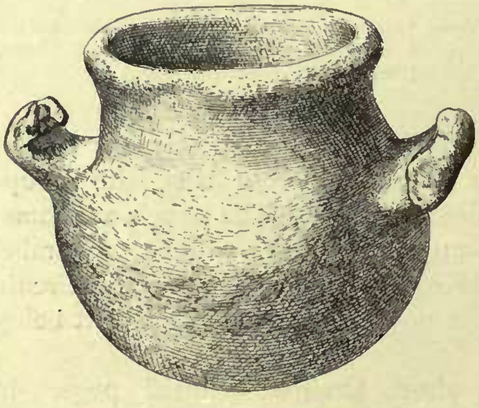

Fig. 164.—Non-scarified vase with handles crudely representing animal forms; from Caldera Scarified ware. 1/2

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[1] Les indiens de l'État de Panama. Rev. d'ethnogr., 125, fig. 20, 1887.

Holmes speaks of the group as being a variety of ware standing "so entirely alone that had it arrived unlabeled no one would have recognized its affinities with Chiriquian art." The group does possess a number of distinct characters. On the other hand, the affinity of certain pieces with specimens of the maroon group was so marked that great difficulty was experienced in classifying the specimens in question. The piece shown in figure 164, for example, resembles very closely one of the maroon vases (see fig. 170). Both are from the same locality, Caldera, and are alike in shape and size. Even the handles are of the same type, except that in one case they stop short of making a complete loop, and end in a crude pattern suggesting the ornament found on the loop handles of the other at relatively the same zone. The ornament in both instances is intended to convey the same idea, that is still better expressed in figure 165. Here the handles, three in number, are probably intended to represent a bird perched on the shoulder of the vessel. Each is directly over one of the three feet. These suggest more than anything else the spreading tail of a bird and are provided with an incised band at the tip. It would seem as if a section of the bird had disappeared in the body of the vessel that spans the distance between shoulder ornament and foot. This specimen is from Caldera also.

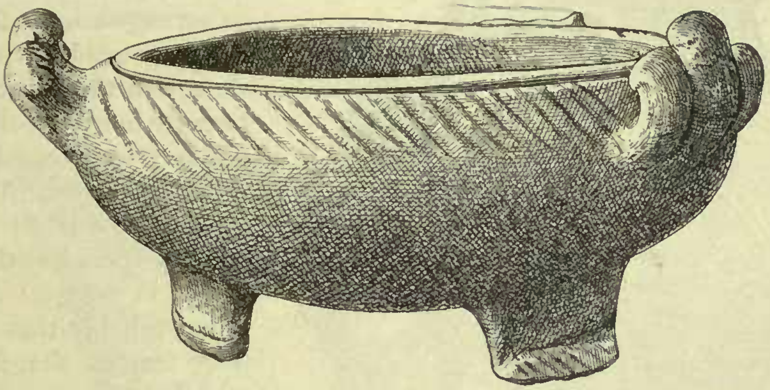

Fig. 165.—Tripod bowl with handles and supports resembling head, wings and tail of a bird (or man); from Caldera. Scarified ware. $^1/_2$

It will be seen from figure 164 that scarifications are not always present. Another example without scarification is given in figure 166, which is heart-shaped in horizontal section, the form being produced by a vertical indentation on one side.

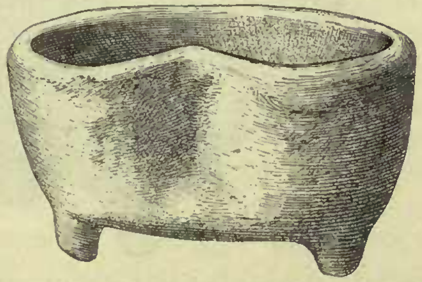

Fig. 166.—Non-scarified tripod, heart-shaped in horizontal section. Scarified ware. $^1/_2$

Another example of shoulder ornament and tripod leg being made to represent the upper and lower extremities, respectively, of one and the same creature is seen in figure 167, where the human form is treated rather fantastically. Mouth, eyes and long hair are indicated. The hands rest on the chin. The section from arm-pits to knees is lost in the body of the vessel. Only one shoulder ornament remains, the other two having disappeared, one of them evidently while the vessel was still in use, as the place where it stood had been rubbed down and painted before the tripod was buried — an example of prehistoric pottery mending that should not escape notice. This specimen is from El Banco.

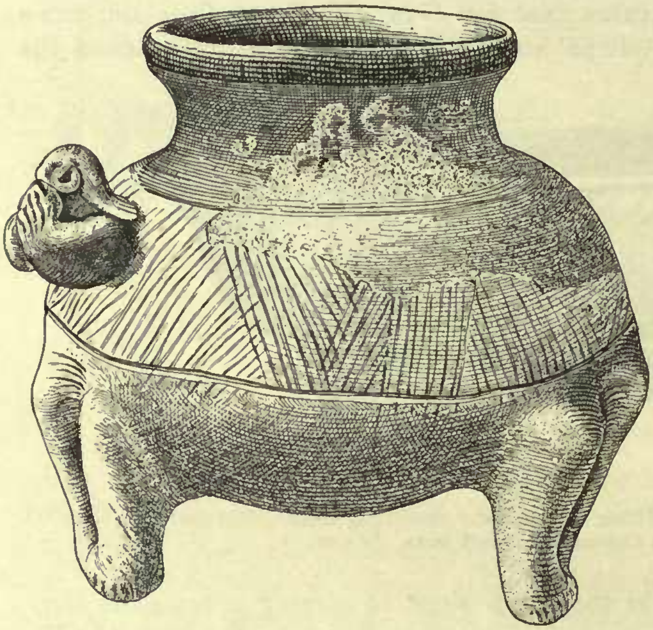

Fig. 167.—Tripod in which shoulder ornaments and supports represent the head and arms, and the legs of the human figure, respectively; from El Banco. Scarified ware. 1/2

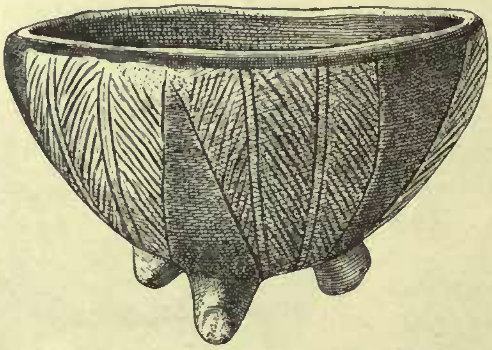

Fig. 168.—Open-mouthed bowl with three short supports placed close together. Scarified ware. 1/2

One marked character of the group is the tendency in the tripods toward short legs placed close together. The latter were so arranged in order that they might be made as short as possible, and they were made short because long legs of such coarse, friable, poorly baked paste would not long endure. They are generally either blunt pegs or are slightly spread at the extremity, so as to suggest a three-toed foot, probably that of the tapir. The feet of the flat-bottomed tripods have completely disappeared. The open-mouthed bowl represented in figure 168 is a typical example of the bunching of three short legs.

Two of the tripods are oblong basins, with the rim carried up to a point at the ends, near each of which are two rim nodes. Figure 169 is an example. There are four scarified areas on each vessel — two on a side, an upper and a lower, separated by a narrow, horizontal, smooth band. The areas of one side are separated from those of the other by a wide, vertical, smooth band at both ends and along the bottom, where the band spreads into a field in which the three stump legs are set. A thin coat of maroon paint covers the entire surface, both inside and outside, including the incised patterns. In another boat-shaped tripod vase, the paint was applied to the smooth surfaces only. That it was applied after the incised patterns were made, is evidenced at numerous points by the careless way in which the paint was allowed to fill the incisions that border on smooth fields. This is best seen in the upper areas, where small groups of parallel incisions alternate with narrow painted bands. The scarifications in the lower fields are the exact counterpart of a geologist's drawing to represent cross-bedding in section.

Some of the finest specimens of the scarified ware are reproduced in Plate XXVI. The most remarkable member of the group is the large jar with flat bottom and flaring rim (fig. *a*). Holmes figures a jar of somewhat similar make, but smaller and less attractive in form and finish. The scarified zone reaches from near the base to the neck, and therefore covers the surface of a truncated cone. A careful study of the incised lines reveals the relative order in which they were made. The circumferences at neck and base were first described. The twelve groups of vertical lines, three in a group, followed and were drawn from neck toward base. The twelve alternating, rather broad bands were then scarified obliquely, the lines being drawn always from above downward — to the right in one field and to the left in that adjoining. Many of the vertical lines are almost as straight as if they had followed a ruler. But all the work is free-hand and has the air of having been done by a skilled hand working rapidly. The entire surface, both within and without, is painted. The jar is 26.5 centimeters high. The walls at the rim are one centimeter thick and they grow gradually thicker in the direction of the base, which is itself quite ample. Thus the vessel, though empty, could be overturned with difficulty. Empty, it weighs 3000 grams, and yet its capacity (sand) when filled to the brim is only 1810 cubic centimeters. Its serviceableness as a containing vessel was relatively small. On the contrary, it would hold weighty substances without danger of bursting and may have seen service in that capacity. It does not seem to have been used over the fire, but a majority of the vessels in the scarified group were so employed.

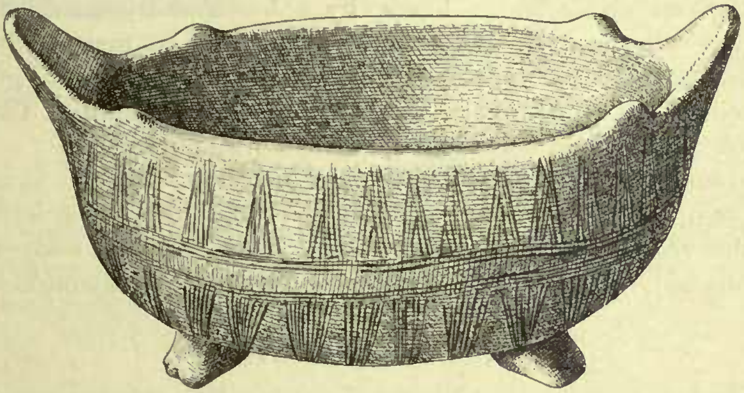

Fig. 169.—Boat-shaped tripod with rim extended to a point at either end, each point being accompanied by two nodes. Scarified ware. ½

The convex bottom of another vessel not supplied with legs is completely covered with scarifications (fig. *b*). This is a two-storied vase. The upper story being left without incisions while the lower is entirely covered by them, the effect is the same as if a smaller bowl had been set into a larger one. It is always desirable, therefore, that illustrations of such specimens should be labeled as composite vessels in order to avoid mistaking them for illustrations of bowls that are stacked for the purpose of saving space.

One vase in this group is mounted on four legs (fig. *c*). To complete the zoömorphic unit, a head and tail are applied on opposite sides below the rim. The carapace motive on either side proves that the animal represented is the armadillo. The artist, however, took some liberty with his motive, making the lines in the anterior and posterior sections of the carapace run longitudinally instead of transversely. A graceful form of tripod is to be seen in figure *d*. The legs are rather long for this group, but are solid like all the others. They probably represent the armadillo, the head of which is indicated by the prominence at the hip.

The bell-shaped, flat-bottomed tripod vase with legs missing (fig. *e*) is an interesting type. The bottom is smooth. The sides are divided into two unequal zones of scarifications, an upper and a lower, by a horizontal painted band near the top. The lower zone is itself divided into three fields by means of three vertical painted bands. The scarified surfaces were left unpainted. These give the effect of having been produced by the impress of some textile fabric. Two lizard-like forms in relief, on opposite sides, complete the decoration.

The entire surface above the feet of one small tripod (fig. *f*) is scarified in a manner that suggests the warp and weft of basketry. Figure *g* is interesting in that one of the vertical scarified bands which encompass the body of the vessel was left unfinished. And yet this tripod had seen considerable service over the fire.

THE MAROON GROUP.

Holmes called one group of Chiriquian pottery the maroon group "for want of a better name." He figures four out of a total of not more than a dozen pieces in the National Museum. The collection in the Yale University Museum numbers perhaps no more. Mention has already been made of the difficulty experienced in deciding whether certain specimens belonged to this or to the scarified group, and in that connection figure 170 was fully described (p. 97). The paste of which the piece represented in figure 171 is composed, resembles very closely that in the scarified ware, except that it is somewhat finer. Moreover,

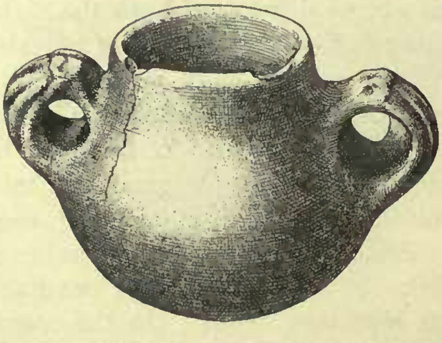

Fig. 170.—Vase with loop handles strongly resembling that shown in figure 164; from Caldera. Maroon ware. 1/2

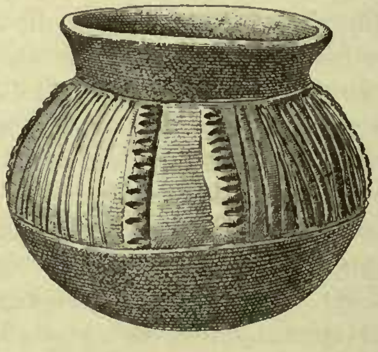

Fig. 171.—Vase ornamented with scarifications alternating with pairs of vertical punctate ribs. Maroon ware. 1/2

this specimen, which comes from thirty-five miles north-northwest of David, is not only actually scarified, but alternating with the scarifications are pairs of vertical, punctate ribs suggestive of the long jointed lizard's tail shown in figure *e* (Pl. XXVI).

In a small tripod from El Banco (fig. 172), the body of the vessel is completely encircled by a series of plain vertical ribs. The entire rib-bearing surface was never polished and was simply stained a maroon color. The paste is relatively fine and very tenacious. The ribs are applied fillets, triangular in section. Of similar paste is a shallow bowl from Divala (fig. 173). The unpolished band encircling the vessel just under the rim is decorated with a circle of eye ornaments in relief, the circle being broken by the figure of a frog at each pole.

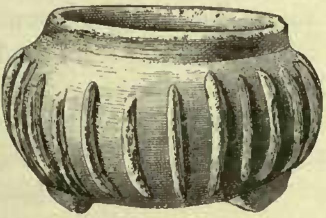

Fig. 172.—Small tripod completely encircled by a series of plain vertical ribs; from El Banco. Maroon ware. $^1/_2$

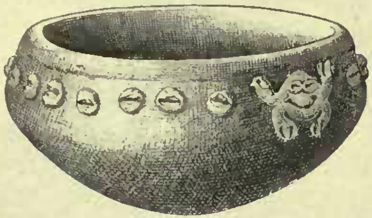

Fig. 173.—Bowl with ornamentation in relief; from Divala. Maroon ware. $^1/_2$

The open-mouthed bowl with annular base and animal features in high relief (fig. 174) is the most characteristic piece in the lot. The rim and inner surface are highly polished and painted a rich purplish maroon color. This bowl comes from near David (Lat. 8° 31′ N.; Long. 82° 27′ W. of Greenwich).

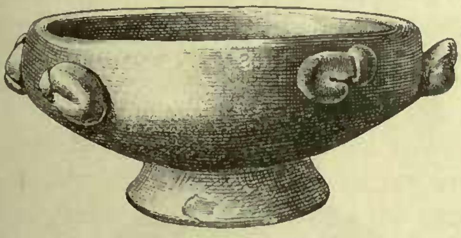

Fig. 174.

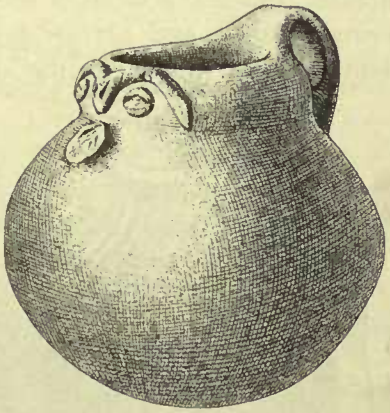

Fig. 175.

Fig. 174.—Open-mouthed bowl with annular base and animal features in high relief; from near David. Maroon ware. $^1/_2$

Fig. 175.—Vase with single handle, opposite which is a relief ornament consisting of a pair of eyes, prominent eyebrows and a nose; from Gualaca. Maroon ware. $^1/_2$

A vase from Gualaca, with single vertically placed handle (fig. 175), completes our list of illustrated specimens for this group. Its only relief ornament consists of a pair of eyes, prominent eyebrows and a nose, opposite the handle. The weathered outer surface and the aperture were once coated with maroon paint. The paste is coarse, but relatively durable.

THE WHITE LINE GROUP.

Only four specimens can be referred with certainty to this group. Three others have all the characters except that white paint was not used. Six of the seven are tripods with narrow necks. The piece without legs (fig. 176) is the largest of the group and differs from the tripods in having a comparatively large orifice. The shoulder meets the body proper at a rather pronounced angle, below which are numerous striæ produced by an unusually rough polishing instrument. The ground tint is a dull red. Two indifferent animal heads, in relief, are used as shoulder ornaments. The shoulder is also decorated with six groups of vertical lines in white, that reach down to the peripheral angle. Each line is accompanied by one or two rows of white spots, the spots being marginal and in actual contact with the line. This motive repeated in the next figure is similar to one that is often employed with variations in the lost color and alligator groups, and is evidently an alligator motive, derived from a dorsal view of the alligator (see Pls. XXXI, XXXVI). The vessel is badly smoked from use over the fire.

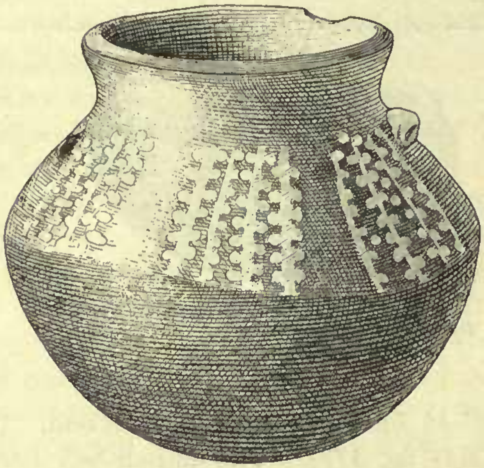
Fig. 176.—Vase decorated with the alligator dorsal-view motive in white. White line ware. ½

Similar decorative motives are employed on a tripod (fig. 177) with gracefully curving outlines and narrow orifice. The ground tint is the same — a dull red. Indented nodes applied to the shoulder on either side represent life forms. The rim ends square against a horizontal plane. Near its outer margin begin six groups of white lines, three lines in a group, which are carried downward in vertical planes to about the level of the greatest horizontal circumference of the body.

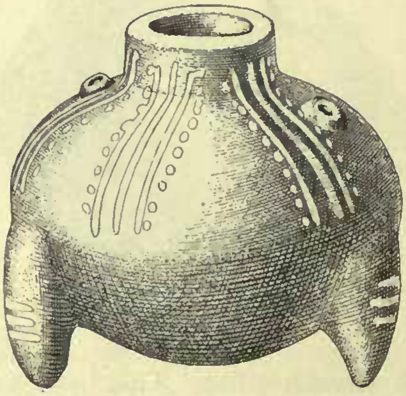
Fig. 177.—Tripod, the shoulder of which is decorated with the dorsal-view alligator motive in white. White line ware. ½

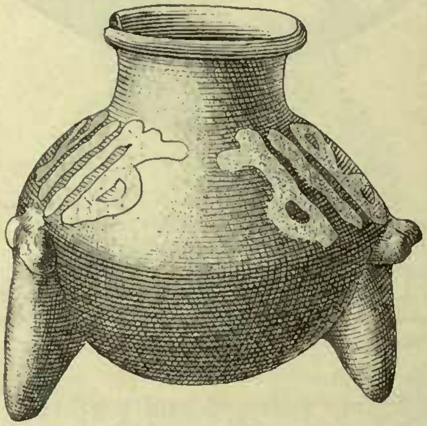
Fig. 178*a*. – Small tripod with shoulder ornamentation suggestive of hieroglyphics, and legs representing animal forms; from Bugavita. ½

There is a row of white spots on both sides of each group of white lines, the spots however seldom touching the lines. This again is the dorsal-view motive derived from the alligator, the lines and spots representing the rows of spines and the scales on the animal's back. This motive is described in a subsequent chapter. Each leg is marked transversely by three parallel white lines, suggesting the carapace motive of the armadillo. Sooty incrustations cover the lower half of the outer surface of this tripod.

A small tripod from Bugavita (fig. 178*a*) presents some remarkable features in the way of decoration, suggesting that the ancient Chiriquians might have made use of a hieroglyphic or phonetic system of writing. This tripod differs from the preceding in having a rounded recurved rim. The inner surface of the orifice and the bottom are painted red. The rest of the outer surface, including the legs, is finished in a warm reddish gray slip. The legs are provided with a head and ears in relief that remind one of the characteristic armadillo attitude.

The white line decorations on the shoulder of the vessel are arranged in three groups, certain symbols being repeated in each. These can be studied to better advantage in the tracings, which show the whole series at a glance (fig. 178 *b*). Reading from left to right the first symbol is not unlike a lower-case *d*; the second may be compared to a capital *I*, and the third to a capital *B*. The second group begins in the same way with the *d*, the top of which, however, is connected with the base of the succeeding *I* by a stroke of the brush that has no counterpart in the first group. The last symbol is slightly damaged at the base, but is evidently the initial *d* symbol inverted. With one or two minor exceptions, the third group is the negative of the second. The stroke, for example, that is carried downward from the top of the negative *d* does not connect with the base of the *I*, and there is a slight break in the loop of the remaining symbol. The resemblance of these symbols to certain letters of our alphabet is of course fortuitous.

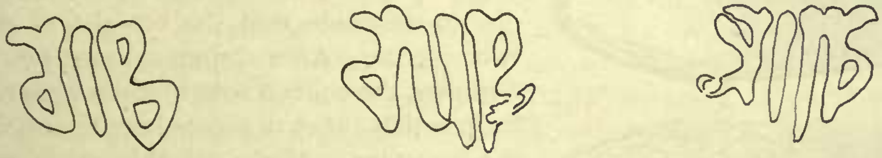

Fig. 178*b*.—Detail of shoulder ornamentation on figure 178 *a*. White line ware. ½

The white line ware resembles a certain type of Costa Rican pottery more closely than it does any group of Chiriquian pottery. The fact that comparatively few specimens of the white line ware have been found in Chiriquian graves is another reason for supposing them to be importations.

THE LOST COLOR GROUP.

In point of numbers the lost color group ranks next to the armadillo group. Its chief distinguishing feature, as the name given by Holmes implies, is the method by which the decorative motives are produced in color, or rather by the removal of coloring matter. Aside from this universal character, the vessels present a wide range in point of form and size. The vast majority may be classed as bottle-shaped vases with globular bodies. Handles are comparatively rare. A number of open shallow bowls are mounted as tripods. Life motives in relief are sparingly used. In only a few instances are these emphasized sufficiently to stamp the specimen as a zoömorphic unit. To the latter class belong a small number of figurines that represent quadrupeds, birds and serpents and serve as whistles. Other forms, including gourd-shaped rattles, are phytomorphic. There are also miscellaneous forms, such as cylindrical needle-cases and double cups with single connecting arched handles.

The paste ranges from yellowish gray to pale red. The outer surface is carefully formed and polished. No attention is paid to the inner surface, especially of the narrow-necked bottles, the result being that the walls are quite thick in some places and thin in others. This carelessness in the finish of the interior is seen in a bottle broken in the plane of its greatest diameter (fig. 179). The inner surface is covered with what appear to be thumb-marks, a fact which, taken in connection with the position of the break, leads one to conclude that the vessel was made in two pieces. After bringing the two pieces together, the contact irregularities were removed by inserting a stick or pointed implement through the aperture. Marks of this stick are seen along the line of cleavage on both halves. Such an interior was not suited to domestic purposes, an opinion also supported by the wealth of exterior ornamentation and the absence of sooty incrustations. These vessels were valued for esthetic and symbolic reasons and not for their storage capacity or as utensils.

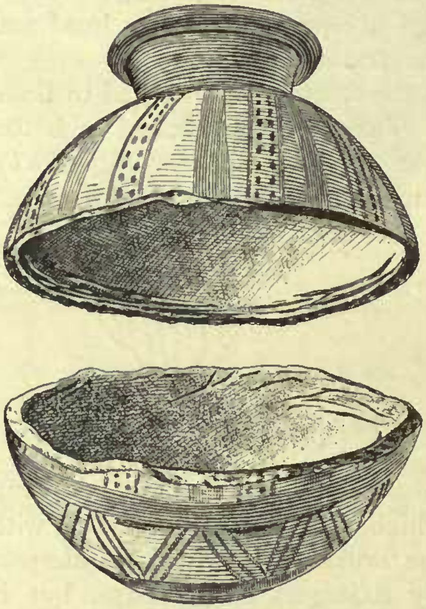

Fig. 179.—Narrow-necked vase broken in plane of greatest diameter, illustrating carelessness in finish of interior. Lost color ware. 1/1

The making of narrow-necked vessels in two or more parts has been reported from Peru. Dr. Davis exhibited specimens of this sort at a meeting of the American Ethnological Society,[1] December 15, 1859. One of these "of spherical form had separated itself into two hemispherical halves, by an even, horizontal fracture."

Sometimes but a single ground color is employed, either a pronounced red pigment or a light to salmon-colored slip. Frequently the two ground tints appear in pleasing combination, the lower half of the body, for example, being in red, the upper half light, and the neck red. Again the red is the true ground, on or in which appear bands or fields of white; or the ground may be white and marked by bands of red. The upper light zone is frequently crossed by bands of red tangent to the neck. But whatever the combination, the red and the light are each and both only the ground on which the artist works out his design. This brings us to the secret of the lost color process.

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[1] Hist. mag., IV, 48.

The secret was unknown to Holmes when he so aptly named the group. He supposed that "the actual patterns, so varied and interesting, were worked out in a pigment or fluid now totally lost, but which has left traces of its former existence through its effect upon the ground colors. In beginning the decoration, a thin black color, probably of vegetal character, was carried over the area to be treated, and upon this the figures were traced in the lost color. When this color (if it was indeed a pigment, and not merely an acid or 'taking out' medium) disappeared, it carried with it the black tint beneath, exposing the light gray and red tints of the ground and leaving the interstices in black. The interstitial figures thus formed are often of such a character as to be taken for the true design. In examining the decoration of this ware, it is essential that this fact should be kept in mind, as otherwise great confusion will result."

Holmes declared that the nature of the materials employed could not be determined. The foregoing quotation is given to show what a really good guess Holmes made. His errors were only two. The black was not applied before the 'taking out' medium, and his so-called 'taking out' medium was neither a pigment nor an acid.

While on an expedition to Central America in 1896 and 1897, Professor C. V. Hartman[1] visited the Aztec village of Izalco, Salvador. There he was able to observe a method of ornamenting calabash vessels by means of what has been called "negative painting." The work is done by women only. The shell is opened with a knife and the seeds and soft interior removed. The skin is taken off by means of a bivalve (*Arca*) shell. When sufficiently dry, the outer surface is decorated in the following manner: The designs are traced with a small paint brush, the medium being beeswax blackened by smoke and kept in a fluid condition by heating in a clay vessel over a charcoal fire. The second step begins with the preparation of a black adhesive solution, consisting of sugar or honey, powdered charcoal and the pod of a leguminous plant (Papilionaceæ). The mixture is placed in a large earthen vessel and allowed to boil over a fire. Its adhesiveness comes from the sugar, its color from the charcoal, and the pulverized pods give the varnish-like finish. The solution is rubbed on the outer surface of the calabash vessel with a rag and left to dry. The vessel is finally immersed in a bath of hot water, which melts the wax and removes with it the color from the waxed portions, leaving the pattern in the color of the original ground. The hot water does not injure in the slightest the black that remains; so that instead of a white vessel with dark ornamentation there results a black surface with designs in white.[2]

What explanation could be more simple, effective and plausible? The so-called 'taking out' medium used by the ancient Chiriquian was therefore evidently wax, and it was applied before instead of after the coating of black, portions of which it removed on being heated, leaving the desired pattern in the ground color and the interstices in black; the latter is therefore not a true delineating color. The name *lost color*, however, is still as appropriate as it was when first given to the group more than twenty years ago. Hartman and others call it "negative painting." The same process was known to the ancient inhabitants of Ecuador, Professor M. H. Saville having found some fine examples of it around Rio Bamba. It also occurs in northern Ecuador and southern Colombia. I have just discovered in the Keith Collection of ancient pottery from Mercedes, Costa Rica, a vase painted in this manner. Hartman cites recent examples from Guatemala, and it is also met with in the native art of Java and Hawaii.

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[1] Die Baumkalabasse im tropischen Amerika. Boas anniversary volume, 1906. New era printing company, Lancaster, Pa.

[2] Professor Pittier, who quite recently visited Salvador and bought various calabash vessels at Izalco, states that the ancient negative method of decorating is no longer practised there. (Note to Professor Hartman.)

Much of the richness in contrast between the black interspaces and the patterns in the original ground colors is lost, owing to the ease with which the black rubs off. When new, the ware must have been highly effective. So much of the black pigment has disappeared through usage before burial, and especially from long contact with the earth in a region of relatively great rainfall, that the original ground colors show everywhere through the black, and in many places the pattern is completely lost because of the absence of the black.

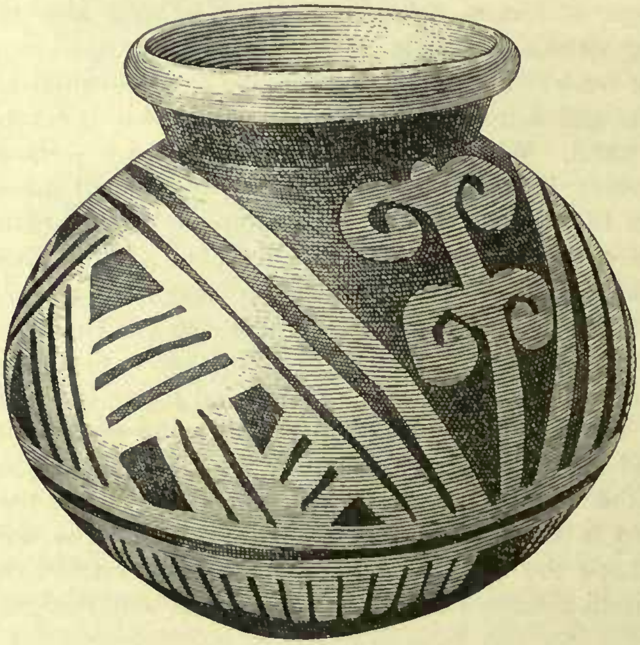

Fig. 180.—Vase in red and black with large aperture, and two arched panels on shoulder. Lost color ware. 1/2

Beginning with examples in which the entire original ground is red, a vase from Divala with linear decorations is reproduced in Plate XXVII (fig. *a*). It took a high degree of skill to arrive at such perfect proportions as are here exhibited. The pattern was first laid down in wax over the red, the entire outer surface then being coated with black. After the vessel was passed through the hot-water bath, the pattern appeared in the red of the original ground; what is left of the black on the interspaces becomes what might be called the final ground, and what was originally the ground takes the place of the delineating color. The framework of the pattern consists of two horizontal bands, one broad and one narrow, just below the greatest circumference of the body, together with two sets of similar bands tangent to the neck on either side and in nearly vertical planes. These divide the upper zone into two arched panels and two alternating upright panels. Two bands in a vertical plane mark each upright panel. The outer surface of the neck is marked by bands in a similar sense, while the lip and inner surface of the orifice are left in the original ground tint. The arched panels are filled in with groups of parallel bands that form a sort of compressed or faulted meander. The lower zone is in black except for four groups of radiating bands passing from the lower horizontal band down about half-way to a median point on the bottom. This is a favorite treatment for the lower zone.

The modeling in figure 180 is much inferior to that of the preceding and the aperture is unusually large for this group of ware. The lip is red and recurved (the pattern seldom encroaches on the lip and never on the inner surface of the aperture). There is a similar framework of horizontal peripheral bands dividing the body into an upper and a lower zone, and of bands tangent to the neck on either side, dividing the upper zone into four panels, two being arched and two upright. The decoration of the upright panels is more felicitous than it was in the colored figure *a*. In both instances, the endeavor was to break up the broad expanse of black. Here, on the side turned toward the observer, it is very successfully done by a plantlike form with two pairs of lateral fronds. The opposite panel is treated differently. There is once more the faulted meander filling the arched panels. The treatment of the lower zone is characteristic for the group.

Other examples of vases with solid red ground and linear ornaments are given in Plate XXVIII. The same method of treatment is repeated in figure *a*, except that the two main panels of the upper zone are quadrangular instead of arched, and the faulted meander is cut in two by a series of vertical bands. The upright panels being narrow are not decorated. The neck is ornamented with vertical bands that encroach on the lip. The frequently employed framework of horizontal peripheral bands and others tangent to the neck on two opposing sides is found in figure *b*. The arched panels thus formed are ornamented in a singularly pleasing, happy-go-lucky fashion. Bands arranged in groups of two or singly meet at various angles and the angular black interstices, when large enough, are marked by one or several spots, some of which are set in small circles or rudely triangular spaces. The lower zone is decorated with eight series of bands in alternating groups of two and three, converging toward the bottom.

The straight-line or banded motive is continued in figure *c*, but the effect is wholly different. There is the same separation of the body into two zones by two horizontal peripheral bands. The decoration of the upper zone consists of ten groups of lines or narrow bands (the red, not the black) radiating from the neck and alternating with triangular spaces. The upper part of the lower zone is marked by seven horizontal bands and a single horizontal series of narrow elongated quadrangular panels, each enclosing a single row of spots. The lower part or bottom is left in black, as is also the outer surface of the neck. The absence here of visible fields in black might easily lead one to mistake the black linear interspaces for the real pattern, the radiating triangular spaces in the color of the original ground tending to strengthen the deception; but the black is never a true delineating color in the lost color group. The polisher used on this vase being rather coarse, the method of using it can be easily detected. The strokes were in straight lines. Those on the upper zone were tangent to the neck and on four sides, the striæ on opposite sides being roughly parallel to each other. The striæ on the bottom are all in one direction, as if the position of the vessel relative to the workman had not been changed throughout the process. It is worth while to note also that the polishing seems to have been done after the application of the final coat of paint (black), as the paint has disappeared along the lines of the striæ. Such, however, was not the sequence of events. On closer observation the black paint is found to have been removed from the ridges of the striæ and not from the intervening grooves; while the underlying red paint has not been worn even from the ridges. The wearing of the black paint from the ridges is therefore due to its exposed position and the non-adhesive character of the coloring matter employed.

With but slight variations, what has been said of the preceding is also true of figure *d*, except that, in place of the series of elongated dotted panels on the lower zone, there is a horizontal band of triangles with apices pointing upward, alternating, of course, with triangular black interspaces. The upper zône is rather sharply depressed, giving to the vase angular outlines.

An especially pleasing arrangement of groups of parallel bands, meeting each other at various angles with a variety of intervening triangles, quadrangles and pentagons, is given in figure *e*. One band never cuts another. When two groups meet, one disappears beneath the other. At one place four groups of bands meet and there is the same orderly overlapping. Three narrow bands are carried round the shoulder just below the neck. The latter is short, with vertical sides, while flaring necks are usual for this group of ware. The entire lower zone is left in the original red ground tint. Here again one might easily take the black bands to be the pattern against a background of angular fields in red. This vase is from Divala.

The upper zone in figure *f* is traversed by a meandering group of narrow parallel bands, the four lower corners of the meander being cut by a group of narrow horizontal peripheral bands. With the exception of a single horizontal band near its upper margin, the lower zone is left in the original ground color. The lip is flaring and rectangular in outline, there being but two other examples of this type of lip in the lost color group.

In Plate XXIX are shown some specimens with handles and some with ornaments in relief. The original ground color is red. The handles in figure *a* are small vertical loops, with black and red cross bands. The collar from which they spring to meet the prolonged lip on either side is decorated with groups of narrow parallel bands, forming a broken meander. The remainder of the upper zone of the body is marked by horizontal bands and panels, each panel with a row of spots in a rectangular field. The lower zone is left in red.

The type of neck is somewhat different in figure *b*, and the lip is recurved, but the cross-banded handles are practically the same as in the preceding. The pattern is confined to the upper half of the body and consists of four triangles with the rather large intervening black spaces relieved by groups of lines forming compound and simple curves. The hollow of each curve in the sigmoid scroll as well as the simple curve is marked by a spot. This spot represents the body-markings of the alligator. The sigmoid scroll is therefore composed of two alligator bodies linked together, while the simple scroll on the right is the body-line of a single alligator. This is one of the two predominant alligator motives so well exemplified in the alligator and the polychrome ware (see Pl. XL, fig. *f*; and text-fig. 256). Its occurrence in the lost color group is one of the many links that bind the ceramic art of Chiriqui into one consistent whole.

The narrow neck of a bottle-shaped vase from Divala (fig. *c*) was never polished and is surrounded by a series of eye ornaments in relief. The contact between the upper and lower zone is slightly angular. Groups of radiating bands with intervening triangles mark the upper half. Some of the broader black interspaces are relieved by rows of spots. With the exception of a small round area on the bottom, which is in solid black, horizontal bands and panels completely cover the lower zone.

Reference has already been made to the lack of adhesiveness in the final coating of black paint, which is supposed to be of a vegetal nature. Nowhere is it completely preserved. In many cases very little remains; in others it has disappeared entirely.

In figure *d*, a specimen from Divala, only the upper half received the wax treatment. Above the three horizontal equatorial bands, a diamond-shaped panel is repeated six times. In each panel are series of parallel bands meeting at an angle and grouped around a central cross, the motive being similar to that on the inner surface of an open shallow bowl of the red line group.

A wide-mouthed vase with recurved lip is reproduced in figure *e*. The pattern is confined to the upper half of the body, the final coating of black encroaching but a short distance on the lower red zone, which is separated from the upper by horizontal bands. Similar bands are carried around the shoulder just below the neck. The three series of vertical bands accompanied by marginal serrations are motives derived from the dorsal aspect of the alligator. These bands alone may be looked upon also as completing the formation of three quadrangular panels, all being treated in the same way — a nest of triangles in the center, with the remaining space covered by a triangular piece-work of red and black.

Thus far the body of the vessels of this group has always been divided into an upper and lower zone. A distinct departure is taken in figure *f*. Under the recurved lip there is a pronounced collar, with a life form in relief – a prominent beaklike nose, eyes set wide apart, and a tail opposite the nose. The framework of the design on the body consists of three series of longitudinal bands. Each of the three panels thus formed is subdivided into three panels by two groups of horizontal bands. These panels are all traversed by faulted meanders. The wider of the intervening black bands are generally marked by a single row of spots in the color of the original ground. This style of ornament recalls the serpent motive, which characterizes the group by that name.

One of the vases with original ground of red (fig. 181) had seen much service, the recurved lip having disappeared piecemeal. The broken surfaces are aged and smoked and the tone of the entire red ground is deepened. On opposite sides of the body are life forms in low relief. Alternating with these on the upper zone are two four-sided panels, each filled by a painted design that retains only slight traces of a life form. The elements of the design are the same on either side, but the combination of these elements is such as to produce two somewhat different results. The motive resembles one that reappears on a number of vases (see Pl. XLII). There are also in this group several small red bottles, the ornaments on which consist of plain and scalloped horizontal bands.

As a rule, in vessels of the lost color ware, the original ground consists of two colors — red and a light cream color that in rare cases is replaced by salmon. The two ground colors are usually applied in zones, figure *b* (Pl. XXVII) being a good example, reproduced in color. The wide neck and bottom are red. The middle zone is a rich cream color, which is now visible only as the pattern on an ultimate field of black. Between the two bands about the neck and the two peripheral bands (the lower one of which is in the red zone) is a row of ten monkey-like figures, all facing the same way and in precisely the same attitude. Each is a conventionalized view in absolute profile, of a monkey sitting bolt upright, its long erect tail reaching as high as the head and recurved at the tip. Both eyes are represented on the side toward the observer, but no attempt is made to show more than two of the four feet. These are conspicuously large and two-toed, the only exception being those of the tenth monkey, which is restricted to a smaller space than the others. The feet here are not spread, the body is more slender, and the eyes are placed in a vertical row instead of horizontally. The whole effect is such as to reveal in a striking way the methods employed in the lost color process. A tripod of this group is decorated with a similar monkey design. It should be recalled that long-tailed monkeys abound in the American tropics, the Capuchin monkeys (*Cebus*) being the most numerous. Other genera represented are: *Mycetes*, *Ateles* and *Nyctipithecus*.

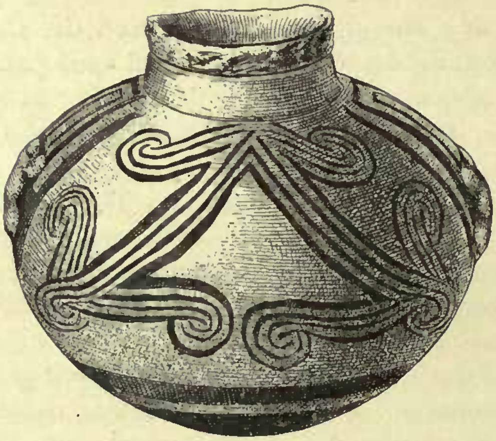

Fig. 181.—Vase in red and black with narrow aperture, showing life forms in low relief alternating with two panel decorations. Lost color ware. 1/2

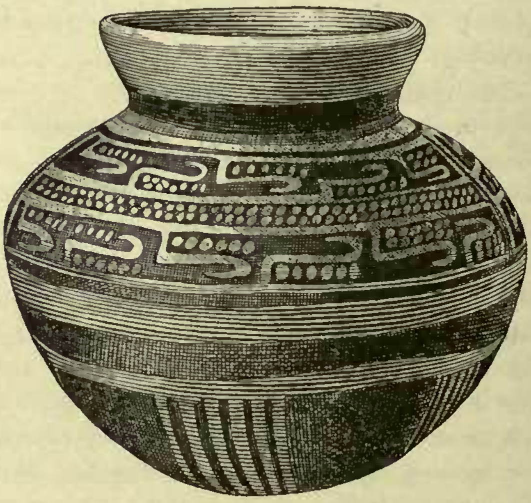

Fig. 182.—Vase in red, light cream, and black, the three panels of the shoulder zone being decorated with alligator motives. Lost color ware. 1/2

The same disposition of the two ground colors is seen in figure 182, where the three panels of the cream zone are filled with highly conventionalized life motives attached to the banded framework of the design and sharply recurved at the free end. The first figure in each row is attached to the band above, as is the attachment of every alternate figure to the band below. Each is accompanied by one or two rows of dots. The design is referable to the spines and scales of the alligator. The width of the panels being greater than that of the light upper zone, the lower part of the design in each appears in the red ground of the lower zone.

In figure 183 very little black is used, just enough to serve as a setting for the design. It is, in fact, one of the few examples in which the black becomes a component part of the design in two colors — black and light on a light ground. The same may be said of the black and red designs on a red ground (see Pl. XXIX, fig. *d*). It is not a perfect example, however, for the black framework of the design is fused with the solid coat of black on the neck. Two series of gracefully curving bands, some continuous and some broken, with a horizontal connection at their bases, form a bilaterally symmetrical figure that covers almost half the upper zone. This is repeated on the opposite side.

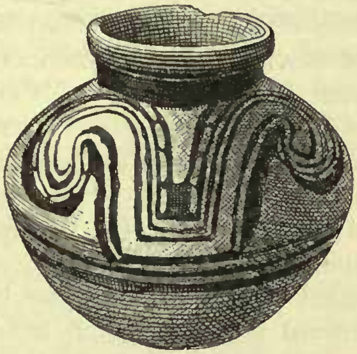

Fig. 183.—Vase in red, light cream and black, ornamented with bilaterally symmetrical figures each covering about half of the upper zone. Lost color ware. 1/2

The original ground colors of the series brought together in Plate XXX are also light above and red below. Figure *a* presents what might be considered the vestiges of a square lip. The otherwise circular margin of the rim is interrupted at four points by slight prominences, two of which have been broken off. Painted eye ornaments surround the neck, and the shoulder is adorned by two panels with a design of plain and scalloped horizontal bands.

Life forms in relief are comparatively rare in the lost color group. They usually consist of an animal head projecting from the body of the vase on one side and a tail on the other. Beyond this the globular form of the body is not interfered with. In figure *b*, two heads appear on one side and a single tail on the other. The heads are alike and reptilian in character, with eyes represented in color. The tail was cut off short in a vertical plane that is not at right angles to the axis of the common body. The two panels that reach laterally from head to tail may be intended to supplement the representation in relief, thus completing the connection between the double head and the tail.

The animal head and tail in the round on the shoulder of the vase reproduced in figure *c* are those of the racoon. Although the head is conventionalized, there is no mistaking the genus in the aspect of the pointed nose and the position of the eyes. The latter are represented both in the round and in color. The tail is cross-banded but much shortened to avoid breaking. The well-known *Procyon lotor* does not range farther south than Costa Rica. *Procyon cancrivorus,* a crab-eating racoon, that belongs in Colombia and Guiana, is also found as far north as Chiriqui and is probably the species here represented. Quadrangular panels decorated with dorsal-view (alligator) motives, some of them incomplete, reach from head to tail on either side. A series of eye ornaments surrounds the neck of the vase.

The design in figure *d* consists of radiating lines enclosing rows of spots.

These bands are repeated in groups of two; triangular spaces alternating with each group. This recalls the prevailing motive in the serpent ware. In figure *e* a similar serpent motive is also seen decorating the arched panels as well as the alternating fields.

The cream zone in figure *f* does not reach quite to the neck. Above and below this ornamented zone the ground is red. A single vertical handle unites rim and shoulder. Meeting the latter at a point within the light area, it is also light instead of red. Of the four panels formed by series of vertical lines, two are narrow and two wide. The decorative motive for the latter is in the shape of a labret or spool. It is distributed in such a way as to make both horizontal and vertical rows. There is a certain system in the irregularity of the everywhere connecting black interstices, that causes the eye to be fixed upon them rather than upon the rows of labret-shaped figures forming the real design. The figure in the upper left-hand corner of one of the panels is just half the size of the others, the space left over when finishing the decoration being too small to accommodate one of the regular size, and too large to be left unbroken. A like attempt to utilize the left-over space occurs on the opposite panel, where half the motive is employed instead of a whole one reduced in size (see also fig. 196). The spool or labret ornament is found on other vases, sometimes being the center toward which radiating bands converge (see fig. 195).

Thus far the oft-recurring framework of bands, peripheral as well as tangent to the neck on either side, has been in the color of the original through which they pass. Where the whole ground was red these bands were red also (Pls. XXVII and XXVIII), and where the upper half was light the bands cutting it tangent to the neck were light (Pl. XXX). In Plate XLII (fig. *a*) all the original ground is red with the exception of the peripheral band and those tangent to the neck, which are white. They were painted on first; then the bottom and the upper panels were colored red; finally came the waxing process and the coat of black, which was eventually removed from the design by melting the wax. This specimen is from Divala, and is not only beautifully modeled and painted but also one of the best preserved of the entire group.

The outline is softly angular, due to the sloping shoulders and slightly pointed bottom. The equatorial band cuts the body into two almost identical halves, the upper being surmounted by a narrow neck and projecting but well-formed lip. The framework of bands is a thick white paste that has received a high polish. The red field encroaches somewhat on the margins of the bands, and the black, the last to be applied, narrows them still more. The lower half of the vessel is in two zones, the nether of red and the upper of black, with groups of narrow longitudinal bands. The neck and lip are also banded. Of the four panels surrounding the neck, the vertical ones are decorated with triangles. The design on the arched panels, alike on both sides, may or may not be construed as a life form. The diamond-shaped center may represent the body, and the six appendages, the head, tail and legs. These are all composed of the same elements — a short straight band accompanied by two longer curving parallel bands. The four short appendages are attached to the center of the four sides of the square; the two long ones, at opposite corners. The whole is a piece of decorative work admirably conceived and adapted to the space at the artist's disposal. The design may have no significance other than this.

Sometimes the horizontal band is placed much below the plane of the greatest horizontal diameter of the vase, as in figure 184. The long vertical panels are decorated with a serpentine design. The design on the relatively large arched panels is made up of a different arrangement of the same elements — narrow bands and rows of spots. Groups of these cross at varying angles, producing an effective bit of decoration. The lip is delicately modeled.

The vase reproduced in figure 185 is exceptional from several points of view. The equatorial band and the two tangent to the neck are simply those parts of the cream-colored slip not covered by the red, instead of the thick white paste employed in delineating the fundamental bands of the preceding figures. In the latter also these were retraced in wax, so that the ultimate design never crossed them, but was limited to the panels and the lower half of the body. Here, however, the design is absolutely independent of the white bands crossing and recrossing them in every direction. The foundation of the intricate design seems to be a series of parallel bands carried in waves about the body of the vessel, rising almost to the neck three times and as many times dropping a little below the light equatorial band. Above and below these waves are loops, cross bands, spots, circles, triangles, etc. The bottom was discolored (black) in the process of firing.

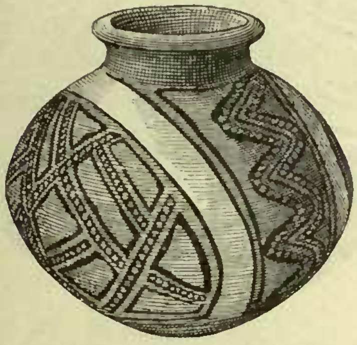

Fig. 184.—Vase in which the peripheral band and those tangent to the neck are painted white. Lost color ware. 1/2

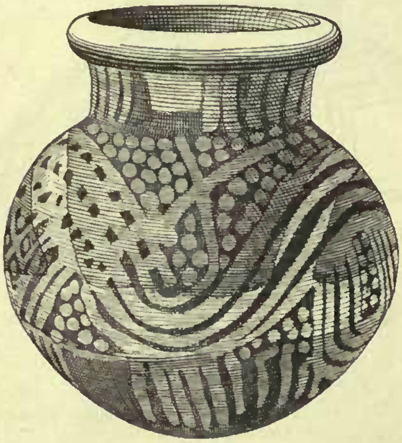

Fig. 185.—Vase in which the peripheral band and those tangent to the neck are painted white and are crossed by the lost color pattern. Lost color ware. 1/2

There is still another series of vases in which the peripheral bands and those tangent to the neck are red on a light ground, as illustrated in Plate XLII (fig. *b*). The upper light zone is crossed by two red bands tangent to the neck. The bottom, lip and inner surface of the orifice are also red. The neck is ornamented with a series of composite eye ornaments. The vertical panels are marked by bands and by small triangular and oval to circular spotted fields. A disjointed meander traverses each arched panel.

In figure 186 the red bands rise vertically from the lower zone, cross the light upper zone and fuse with a red band that encircles the short neck. Four-sided panels, four in number, are thus produced. The details of the decoration on each cannot be determined, owing to the almost complete loss of the black paint.

A new element entering into the technique of the decorator is shown in figure 187. The light zone in the color of the slip includes the neck, and is considerably larger than the red zone below. It is separated into two panels by vertical bands in the color of the slip instead of in red, while the red is used as a true delineating color on each panel. Having been polished down before the paint was thoroughly dry, the outlines are blurred in places and some of the red has been carried out onto the light ground. The design, suggesting a conventionalized alligator, was never wholly finished in red and is not quite the same on the two sides. When being retraced in wax, the missing parts were added and now appear in the light ground color. The whole figure was surrounded by a narrow band (in light) now partially effaced in places from exposure or handling. The black interspacial areas are reduced in size by dashes of the brush that left light bands of varying lengths.

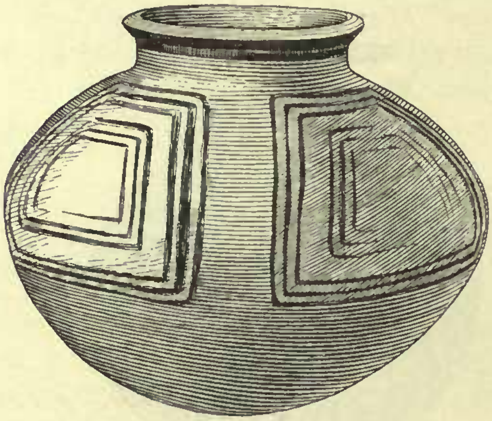

Fig. 186.—Vase ornamented with four four-sided panels. Lost color ware. $^1/_2$

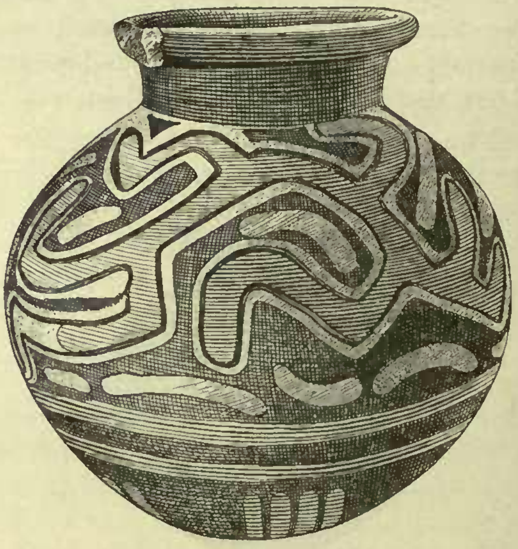

Fig. 187.—Globular vase ornamented with a design suggesting a conventionalized alligator. Lost color ware. $^1/_2$

There are four distinct zones on the globular vase shown in figure 188; a red zone reaching from the rim almost half-way to the plane of greatest diameter, a rather broad light zone, a narrow red zone representing also the peripheral band, and the bottom light again. The broad light zone (now black except the design) is decorated with the labret- or spool-shaped motive already mentioned in connection with Plate XXX (fig. *f*). The artist repeated the motive in a horizontal series by adapting the size and number of figures to the space at hand. The result is that the last one to be made is considerably reduced in size. The narrow red zone below is ornamented with a row of lozenge-shaped figures.

The tendency to break up light surfaces with bands of red is well illustrated in figure 189, representing a wide-mouthed vase. The ground of the principal zone is light. The red ground of the bottom invades the light upper zone at four points, each ascending tongue, forming the center of a design in the color of the light ground, is composed of two looped bands, the outer margin of the outer one being scalloped.

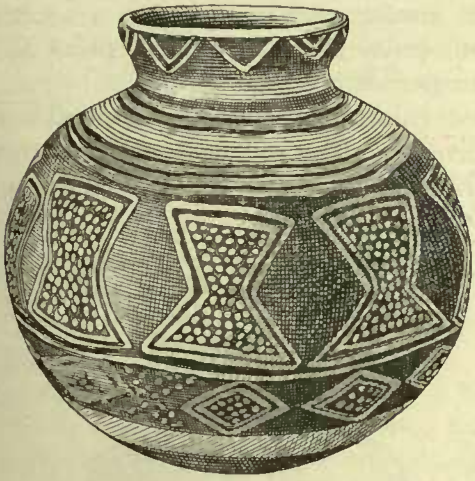

Fig. 188.

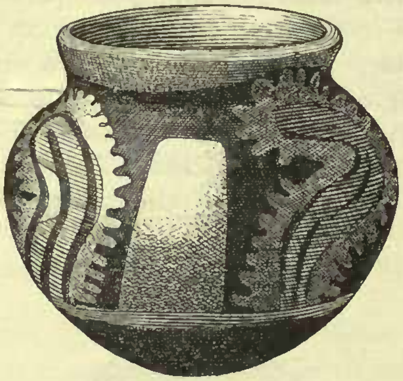

Fig. 189.

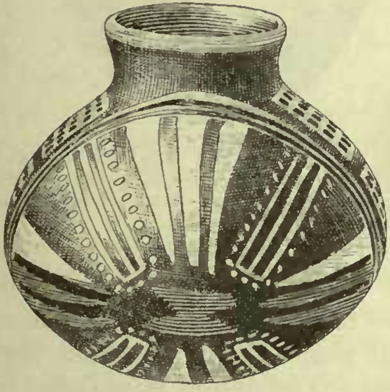

Fig. 190.

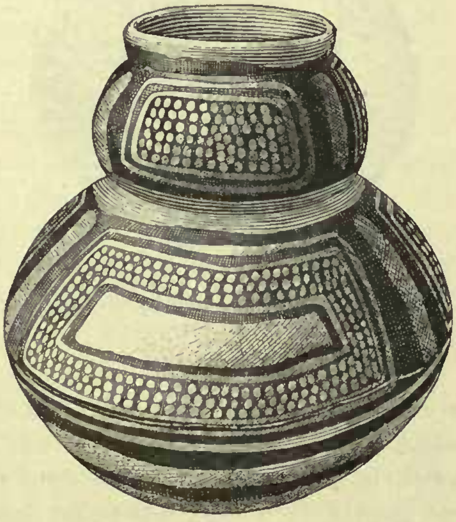

Fig. 191.

Fig. 188.—Globular vase decorated with the spool-shaped motive. Lost color ware. 1/2
Fig. 189.—Wide-mouthed vase. Lost color ware. 1/2
Fig. 190.—Small vase with rosette-like ornamentation. Lost color ware. 1/2
Fig. 191.—Compound vase decorated with three quadrangular panels in each story. Lost color ware. 1/2

There is only one equatorial band of red on the vase represented in figure 190. The bands tangent to the neck on two sides, so frequently met with, are here continuous, forming a vertical circle. The radiate ornament is repeated below the equatorial band, so that the complete design is in the form of a rosette. At its center is a labret-shaped figure. The red band bears no relation whatever to the ultimate decoration of the surface.

A compound vase is reproduced in figure 191. The two neck constrictions, the repeated curves of the outlines, and the decoration, all combine to give the appearance of a small vase resting on the rim of a larger one. Of the two original ground colors, the red as a rule predominates. Here the order is reversed, the red being confined to three rather narrow horizontal bands at the periphery, the lower neck constriction, and the rim, respectively. The rest is in light salmon color. Three quadrangular panels envelop the upper zone of the first story and the upper story is decorated by three similar smaller panels enclosing a spotted field. The bottom is in the original ground (salmon), with the exception of a single black band a short distance below the peripheral band of red.

An unusual disposition of the light and red colors of the original ground is to be seen in figure 192. There is no zonal division. The red field on the bottom is oval, instead of circular in shape, from either end of which a broad red band is carried vertically upward to the neck, where it divides and forms a sort of collar. The two vertical bands are also united on either side by a red band, each drawn in a plane slightly inclined to a horizontal plane. There are thus formed two panels on a side, somewhat irregular in shape. The design on these in light and black is almost wholly lost. The red paint was applied in a careless manner, especially along the margins, an irregularity that was corrected in the waxing process and covered by the final coating of black, the latter being worn off.

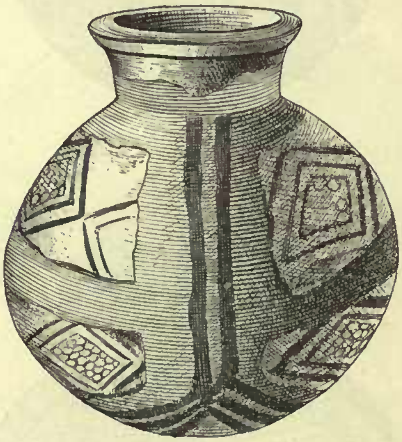

Fig. 192.—Vase showing unusual disposition of red and light colors of the original ground. Lost color ware. ½

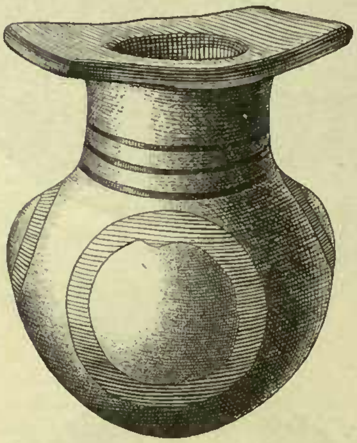

Fig. 193.—Unique vase with large long neck surmounted by a rectangular lip, and with tuberosities on the body. Lost color ware. ½

A vase of unique shape is now introduced (fig. 193) because of the treatment of the two colors of the original ground. The lip is here prolonged on either side until it becomes rectangular in outline. Its upper surface is painted red. The neck is comparatively long and large. The relatively small body would be globular but for the tuberosities on the shoulder, each emphasized by an encircling band of red (the only red ground on the body). Of the decoration on the light ground, including the tuberosities, very few traces remain, but enough to identify the vessel as belonging to the lost color group.

While the lost color group differs from all others in respect to form as well as method of ornamentation, the decorative motives employed are often akin to those that characterize other groups. For example, one of the distinguishing motives of the alligator ware consists of a series of parallel lines or bands, the outer ones being serrated along their distal margins. These lines represent the longitudinal markings on the back of the alligator, while the marginal serrations are added in order to emphasize the dorsal tuberosities or spines. The serrations sometimes assume the form of triangles that are filled with dots to indicate the scales. In other words, this motive is a conventionalized rendering of the alligator's dorsal aspect. I have called it, therefore, the *dorsal-view* motive. This dorsal-view motive is not confined to the alligator group alone. Fine examples of it occur on at least five of the six lost color vases reproduced in Plate XXXI. Both types of lateral serrations are seen in figure *a*: the triangle type on the cream ground of the shoulder zone, and the spine type on the red ground of the neck. The patterns on the latter are marred, however, the black color of the field having disappeared in part.

The original ground of the shoulder zone of the vase reproduced in figure *b* is also a light cream color. But the light zone is traversed by three red bands tangent to the neck, the red being the same as that covering the bottom and the neck, respectively. The arched panels and the field surrounding the neck are completely covered by a series of dorsal-view motives. Here the lateral serrations are plain spines. The use of three arched panels, instead of two, is typical of a series of vases belonging to the alligator ware (see Pl. XXXVI.)

The vase, in shape like a tea-caddy (fig. *c*), is from twenty-one miles northwest of David. The bottom is almost flat (in another specimen the bottom is perfectly flat). In addition to the red lip and neck, red bands encircle the body at the shoulder and at the margin of the bottom. From the upper band, other red bands, three in number, are carried vertically downward, then horizontally, and finally vertically again to meet the band at the bottom, thus forming three overlapping panels. Each design consists of an enclosure in the shape of the panel, with a series of sessile figures otherwise suggesting the quadruped form. The zone between the angles at the neck and the shoulder is also divided into three panels, not by red bands, but by a dorsal-view motive in the light color of the original ground. A single sketchy quadruped figure occupies each of the shoulder panels.

In a vase from Bugavita (fig. *d*), the pattern is confined to the shoulder zone and is of a pronounced salmon color. It consists of the dorsal-view motive placed vertically and repeated seven times. The colors are well preserved in the example shown in figure *e*. It represents a vase in which all the original ground is red, and the bands surrounding the panels are white. The coat of black, when first applied, covered the entire visible surface except the recurved lip and inner surface of the orifice. The two arched panels are relatively small, the pattern being alike in both — two dorsal-view motives placed obliquely.

The original ground in figure *f* consists of two colors, the lip and the bottom being red and the shoulder cream. The lip looks as if it had been cut out of the base of a globular bowl. As it was built upward and outward, it was also slightly incurved. The orifice is oval. The margin being four-sided, quite naturally takes the form not of a square but of a rectangle, the long sides of which are cut lower than their opposites. Patterns cover the entire outer surface. That on the neck and lower zone consists of converging bands. The upper light zone is divided into three panels, the pattern on all being the same. It includes all the elements of the dorsal-view motive. The spots (scale motive), however, instead of being placed in the marginal triangles, are bunched together in a median field.

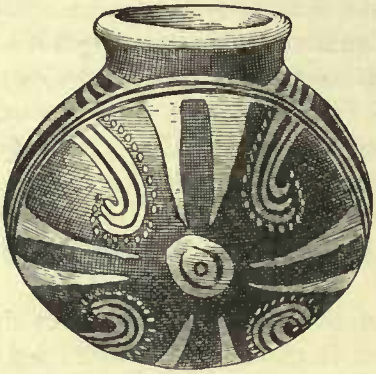

Fig. 194.—Small vase with radiate ornamentation. Lost color ware. ²/₃

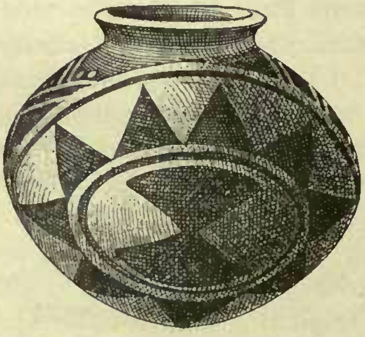

Fig. 195.—Small vase with radiate ornamentation, the elements of which may be traced to an alligator motive. Lost color ware. ²/₃

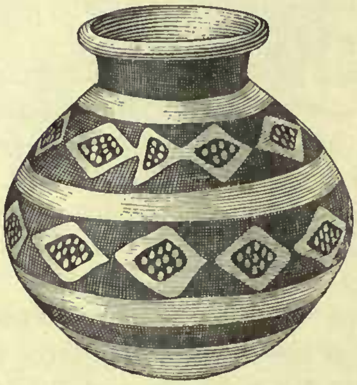

Fig. 196.—Vase in pale yellow and black, with zonal decoration. Lost color ware. ¹/₂

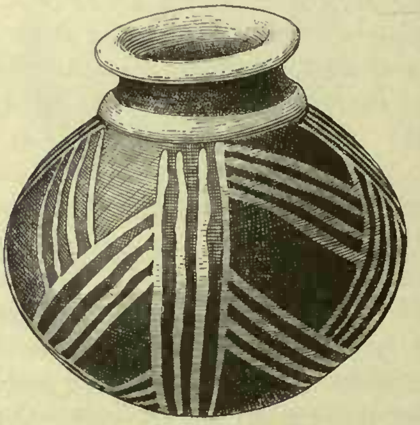

Fig. 197.—Vase in light cream and black, decorated with vertical panels each enclosing a faulted meander. Lost color ware. ²/₃

The lost color ware includes a series of small vases, all the original ground color of which is a rather light cream to salmon-colored slip. The radiate ornament already noted (see fig. 190) abounds in this series. Another example is given in figure 194. The same ornament is repeated in the circular panel on the opposite side. Some of the elements of this pattern suggest those that make up the dorsal-view motive. They may have been derived from another source, however. Another variety of the radiate ornament or rosette is seen in figure 195. Here again are present the elements that form the dorsal-view motive, but the radiate arrangement of the marginal triangles gives a different aspect to the motive as a whole.

The zonal decoration recurs in figure 196. The bottom is the color of the salmon slip. Above are alternating bands of black and salmon color. The two broad black bands are broken up by a succession of diamond-shaped figures. Red occurs only on the rim and the inner surface of the orifice. The panels in figure 197 are vertical, reaching from the collar to the bottom, and bounded by groups of parallel lines. Each panel holds a faulted meander, itself composed of parallel lines.

Zonal and panel decoration is characteristic of the lost color group. In very rare instances is the panel idea lost sight of. Figure 198, representing a small vase from Divala, is a case in point. The original ground tint was cream-white, the design executed in wax being therefore of that color. It consists of two parallel bands, one solid and one dotted, curved in the shape of a ram's horn that describes a vertical circle twice, the base of the horn being at the neck and the tip in the plane of the equatorial diameter. The black field within the outer coil is decorated with a white pattern in the shape of a four-pointed starfish. The design is repeated on the opposite side of the vessel and in the same sense, i. e., each represents the right horn. A similar design is found on a small vase from Bugavita. In the latter case, the coil is carried round three times and is therefore closer, leaving no room for the starfish pattern.

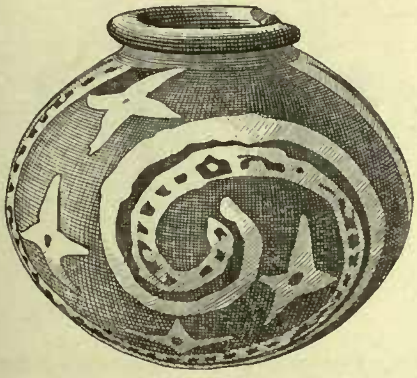

Fig. 198.—Small vase decorated with parallel coiled bands; from Divala. Lost color ware. $^{2}/_{3}$

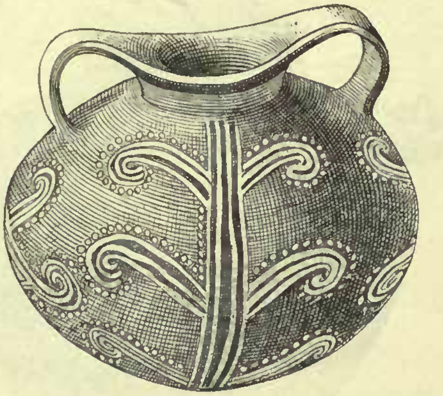

Fig. 199.—Vase with handles and with frondlike ornamentation. Lost color ware. $^{1}/_{2}$

The vase reproduced in figure 199 is provided with a pair of handles uniting shoulder with prolonged lip. The handles having been applied before the polishing took place, their under surfaces as well as the neck and the parts of the shoulder underneath the handles are left in the rough. The lip and the outer surface of the handles are painted red. The original ground of the neck and entire body is a pale salmon slip. The black is so nearly gone that the decoration is much dimmed. A frondlike motive is repeated over and over again. A median point on the bottom is the center. Through it pass four slender vertical parallel bands reaching from a position half-way between the handles on one side to a like position on the opposite side. Beginning at the bottom and ascending on either side to the neck are successive pairs of opposite fronds. Each frond consists of three slender parallel bands rather sharply curved at the tips, with a single row of spots adjacent and parallel to the longer upper band. In some cases this row of dots is carried up the stem to the base of the succeeding frond. In the large field below the base of each handle there is a design with diamond-shaped center and six frondlike appendages, recalling the design in the arched panels of the vase reproduced in Plate XLII (fig. *a*).

As has been already pointed out, representations of the human form are primitive in their conception and execution. This is true of the two human figures in relief on the shoulders of the vase reproduced in figure 200. The attitude in both cases is striking. The human figure on one side seems to be in the act of descending feet foremost and with back against the surface, to which it clings with outstretched arms. The treatment of the head is especially interesting. The neck is not indicated; the chin receding; the mouth open; nose and retreating forehead are in a straight line; and the occipital region is flattened, meeting the frontal portion at a rather sharp angle. This type of head is to be seen in figure 201 and on some of the figurines and whistles (see fig. 266). It also recalls the primitive figurines with birdlike heads, from Argos, that date back to 1200 B. C. Black circles of paint represent the eyes. The other human figure is the same in every respect save the attitude. It seems to have fallen backward while in the act of ascending face foremost. The legs are sharply flexed at the knee and the arms are extended to prevent further descent. The upper zone in which the relief ornaments occur is light cream, while the bottom, the margin of the lip and inner surface of the orifice are red. The black paint has almost entirely disappeared, so that the design cannot be determined beyond the series of painted eye ornaments surrounding the neck.

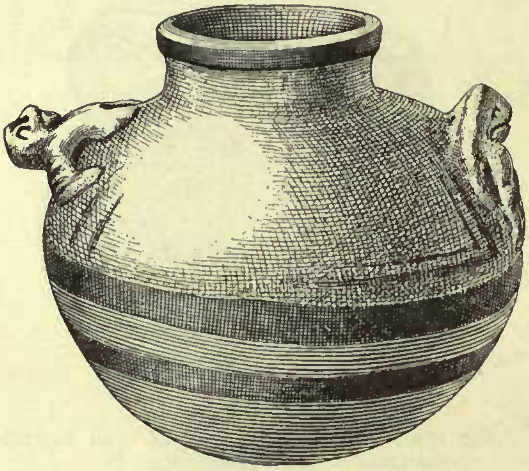

Fig. 200.

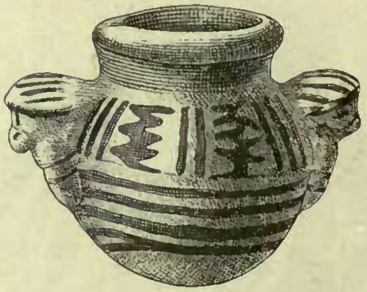

Fig. 201.

Fig. 200.—Vase with primitive human figures as shoulder ornaments. Lost color ware. 1/2

Fig. 201.—Very small vase with relief figures on shoulder representing the human head and arms. Lost color ware. 2/3

In figure 201 is reproduced one of the smallest examples of the lost color ware. The original ground is partly red and partly light cream. The relief figures on the shoulder represent the human head and arms. The head belongs to the primitive bird type and there is a distinct coiffure in relief, accentuated on the rather flat top by bands of light and black. The eyes are in relief that is heightened by the use of color. The upper zone is ornamented with the dorsal-view (alligator) motive.

The black paint has entirely disappeared from the vase represented in figure 202. The orifice, rim, and bottom are red and the shoulder zone, light. The relief ornament consists of a birdlike head, opposite which is a horizontally applied loop handle taking the place of a tail. A small vessel from Divala, 25 miles west-northwest of David, is shown in figure 203. A single vertical handle connecting rim and shoulder on one side is balanced on the other by a figure in relief, with human body and a beak of a bird, presumably the parrot-god so well represented among the gold figurines (see figs. 369, 373).

The group includes a number of small double vessels with single arched handle connecting the inner margins of two lips. One of these from El Banco, is shown in figure 204. The original ground is light cream. No traces of black paint remain. The outer surface is blackened by smoke. The crest of the arched handle is marked by a fillet. There is no communication between the interior of one bowl and that of the other.

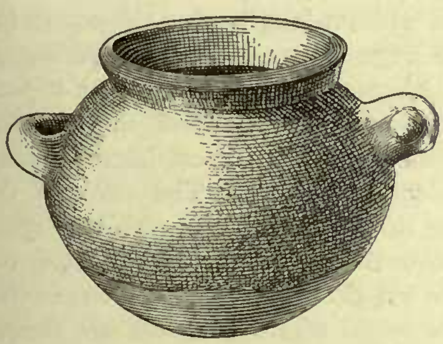
Fig. 202.—Vase ornamented with bird's head and tail in relief, the latter resembling a horizontal loop handle. Lost color ware. $^1/_3$

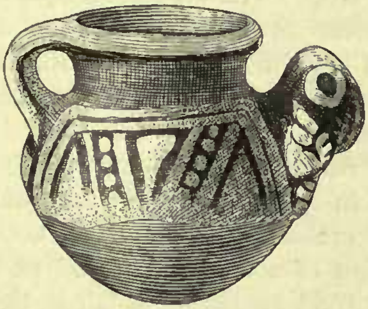
Fig. 203.—Vase with vertical handle, opposite which is a figure with human body and the beak of a bird, presumably the parrot-god; from Divala. Lost color ware. $^1/_3$

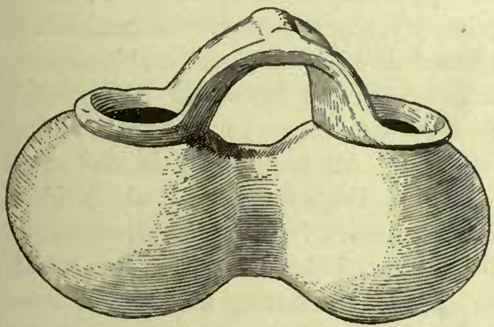
Fig. 204.—Small double vessel with single arched handle; from El Banco. Lost color ware. $^1/_3$

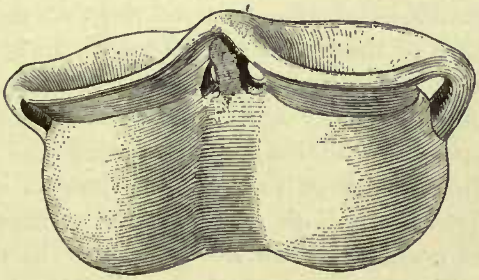
Fig. 205.—Double vessel with two outer handles and a single short arched central handle. Lost color ware. $^1/_3$

The double vessel reproduced in figure 205 differs in detail from the preceding. The original ground is of a rich salmon color. Each of the two vessels has a vertical handle connecting the outer margin of the lip with the shoulder. A single short arched handle connects the adjacent margins of the lips. This handle in common is strengthened by a vertical prop. The two bowls are placed close together, their interiors communicating by means of a foramen large enough to admit the little finger.

A comparatively small number of vessels belonging to the lost color group are mounted as tripods. A selection from these to show the variations in form and ornamentation as well as the character of the tripod legs, is seen in Plate XXXII. The body of a tripod vase from Divala (fig. *a*) is so altered in the equatorial region as to resemble the crab. The mouth is indicated by a node with one horizontal and three vertical incisions. Next to the mouth is the first pair of legs, flexed, with incisions to indicate claws. Back of the legs and making the complete circuit of the body are six pairs of spines. The third pair, being much larger than the others, gives to the cephalothorax the appearance of being broader than long. The crablike shape is thus rendered without lengthening the equatorial diameter of the interior in the direction of the large spines. The proportionately great breadth of the cephalothorax is similarly indicated in several crablike tripods of the armadillo group, with this exception — that in some cases the greatest horizontal diameter of the interior is in line with the pair of great lateral spines, thus further emphasizing the breadth of the cephalothorax. The neck of the vase in question is red; the shoulder, i. e., the dorsal part of the crab's body, is light cream; the ventral surface or portion below the spines is red, with the exception of a modified trefoil or trilobed pattern on the bottom and between the the tripod supports, which is light cream. The solid tripod supports are deeply incised, painted red, and cross-banded by the usual lost color process. The most interesting part of the painted decoration is reserved for the back of the crab or, in other words, the shoulder of the vessel, which is divided into four panels by labret- or spool-shaped ornaments, each one being accompanied by two eyes. This particular combination of the two motives evidently represents the animal head. One of these is therefore very appropriately placed directly over the crab's mouth. The same design unaccompanied by eye ornaments was noted in Plate XXX (fig. *f*) and in figure 190. Each panel is decorated with a row of monkeys sitting upright, with long recurved tail and extended legs. All are facing in the same direction, i. e., to the right, just as in the vase from Bugavita (see Plate XXVII, fig. *b*). In both examples the monkey figures are so nearly alike that they might be considered the work of one school of artists, if not, indeed, of the same artist.

Figure *b*, reproducing a shallow tripod bowl, is an interesting example of converting the body of the vessel into the the body of the animal without essentially altering the simplicity of the original phytomorphic outlines. In the region of greatest horizontal diameter of the body, the walls are suddenly drawn in for a short distance and then turned upward and slightly outward at the margin. This mere suggestion of a neck is excuse enough for the artist to leave the interior unpainted. The life elements are in relief and applied to the exterior in the plane of the angle between the narrow shoulder and the body proper. Three flattened nodes in a horizontal plane represent the tail and wings. The neck rises almost vertically, the head which is turned to one side being that of the turkey-buzzard (*Cathartes aura*). Its baldness is emphasized by an incised fillet about the neck, separating the feathered from the unfeathered portion; by eyes in high relief, nodes with annular indentations, and by absence of paint. On the other hand, the neck of the buzzard, as well as the rim and external surface of the vessel — that is to say, the feathered neck and body of the bird — were originally painted red, with the exception of a triangular area on the bottom bounded by the tripod supports, which like the buzzard's head and the interior of the vessel is pale brick-red, the color of the paste after firing. The painted portions are everywhere decorated with groups of parallel straight bands that meet at various angles. The supports are banded horizontally.

The lost color group is characterized by a prodigality of external ornamentation, even the bottom of the vase, which would be invisible under ordinary circumstances, coming in for its share. One would expect to find a decorative design on the easily visible interior of the open shallow bowl reproduced in figure *c*. The margin of the rim and the interior are given a uniform coat of red, there being absolutely no traces of black over a waxed pattern. With the exception of the legs, the whole outer surface, however, including the bottom, is elaborately decorated. The original ground of the sloping sides is a light cream slip; that of the bottom is a red paint. The spool-shaped ornament accompanied by a pair of eyes is repeated so as to divide the light zone into five panels. These are each crossed vertically by three groups of parallel bands, the group on the left in each case being somewhat smaller than the other two groups. The decorative unit, therefore, is the spool-head and eyes and three groups of bands, in other words, the head and body of an animal. If an animal form, then the most plausible interpretation of the banded body is that it represents the carapace of the armadillo. The pattern in red on the bottom consists of series of curved bands grouped about the bases of the tripod supports, and might be described as a modified trefoil.

The neck in figure *d* being only slightly constricted is sufficient reason for not painting the interior. The rim and bottom, including the legs, are red and the shoulder is finished in a light salmon slip still visible through the black interspaces in the design. Six groups of narrow vertical bands alternate with as many labret- or spool-shaped ornaments. Three of these are on end and three placed horizontally. Each is accompanied by a pair of eye ornaments. The spool-shaped figure thus suggests the head and nose of some animal. There is a group of bands for each head. Therefore, the whole is intended to represent an animal, presumably the armadillo (see fig. *c*).

That the interior of the shallow tripod bowl shown in figure *e* was treated by the lost color process, there can be no doubt, because of the preservation of the black paint. The design is pleasing and bilaterally symmetrical. Traces of black are also found on the rim, which was originally red. When painted at all, the interiors of the lost color group are always colored red. The modified trefoil pattern on the red bottom is similar to that shown in figure *c*. It may be that the painted interiors of all the shallow bowls of this group were treated to wax and black paint, as was the case in the last bowl described. There are very faint traces of black bands on the interior of a large shallow tripod bowl from Escaria.

In figure *f*, the interior of the tripod bowl, being easily visible, is painted (red) and highly polished. If it was ever decorated with a pattern of black over wax, the black has so completely disappeared as to leave no traces of it. The outer surface, including legs and bottom, is all decorated; the sides with black on light cream, the legs and bottom with black on red. The sides are divided into four panels by means of four groups of vertical bands, two of these groups being themselves subdivided into three groups, the outer ones differing from the inner in such a manner at to suggest the anterior, middle, and posterior regions of the carapace. In the four panels are figures, apparently representing rolled-up animals.

A deviation from both the bottle-shaped vase and the shallow tripod bowl is noted in figure *g*. The sloping, flattened upper half of the body and the collar rising sharply above produce a new type of vase. The bottom and tripod supports are red; the upper stories, light cream. The design on the bottom is the modified trefoil. The legs are marked by horizontal bands.

With figure *h*, we drop back to the plain primitive calabash type for the body of the tripod bowl. The rim and interior, being easily visible, are painted red but were not otherwise decorated so far as can be detected at present. The outer surface of the body is divided into two zones, an upper in the light color of the slip and a lower in red. Both were decorated, faint traces of the black paint being still visible. The legs are of special interest. They are rather long and provided with wide lateral slits. Near the attachment of each tripod support are two protuberances for eyes, the representation being further accentuated by a circle of black paint surrounding a black spot. Between the eyes is the spool-shaped figure, also in black, and completing the head symbol, as shown in previous illustrations (see figs. *a*, *c* and *d*). The identity of the head motive, therefore, is established beyond the shadow of a doubt. Below the head are three black horizontal bands (the carapace motive) so that each tripod support is a life form, evidently the armadillo.

Another interesting feature about this specimen is that, from the view-point of the technique involved in the decoration, it serves as a connecting link between the lost color group and the so-called alligator group that succeeds it. The lost color technique is everywhere followed in ornamenting the body of the vessel, as regards both exterior and interior. The interior, for instance, of shallow bowls of this type is always painted red, while in the alligator group it is coated with a light cream slip. The exterior was treated to the usual coat of non-adhesive black over a waxed pattern — the very essence of the lost color process. On the other hand, the design on the tripod supports is produced directly by the application of black paint, the black being the design, instead of the interspace, and also being a much more permanent black than that employed in the lost color process. It is apparently the same black that is used as a delineating color in the alligator group. This is another evidence of the homogeneity of Chiriquian art, although the various groups may be quite distinct as a whole.

A number of small figurines, whistles, needle-cases and rattles, belonging to the lost color group will be described in a subsequent chapter.

THE ALLIGATOR GROUP.

One of the most interesting classes of Chiriquian pottery is that appropriately named by Holmes, the alligator group. In point of numbers, it is inferior to the lost color group. It is like the latter in that a majority of the vessels may be classed as bottle-shaped vases with globular bodies; and in the comparative rarity of features in relief, such as handles, legs and plastic shoulder decorations. The average size is also about the same in the two groups. On the other hand, there are striking differences to be noted. The line of demarcation between neck and shoulder is not so sharp and the width of neck is proportionately greater. The interiors are more carefully finished, although much inferior in this respect to the armadillo group. The forms are usually pleasing and are perhaps more varied than in the lost color group.

The chief distinction between the two groups lies in the processes of ornamentation in color; for, while telling its story, each depends primarily on color to attract the attention. The lost color process has already been described. The original ground was usually in two colors, a red pigment and a light cream slip in alternating zones. Frequently the entire original ground was red, sometimes light cream to salmon. The designs were always in one or both of these colors. In the alligator group the designs are always on a pale yellow slip, which is almost always applied to the entire surface. The lip is often red and in a number of cases the same pigment covers the bottom, but designs are never worked out upon the red surfaces. Both red and black are delineating colors, the black playing perhaps the more important rôle. The black is a fast color in comparison to the black of the lost color group.

The motives are either distinctly life forms or else derivatives that are traceable to such forms. The alligator is the favorite subject: hence the name given to the group. Among the bottle-shaped vases, the decorative motives are confined to the shoulder and are not always set in panels. Frequently the shoulder zone is divided into two or three arched panels, calling to mind the arched panels of the lost color group. In the latter there are generally but two such panels; on the other hand, in the alligator group, the prevailing number is three. Again, the motives are not always set in a delimited zone or in panels, but are often painted on the shoulder without a setting.

The motives derived from the armadillo as well as from the fish, the frog, the bird and the jaguar are almost always plastic. Plastic forms of the alligator are not often met with except among gold ornaments. Painted forms of the alligator and derivatives therefrom are on the contrary very abundant, especially in two of the groups of pottery.

While these painted figures of some saurian were referred by Holmes to the alligator, it is by no means certain whether the ancient Chiriquian artist may not have had in mind the crocodile instead. Both are found in Chiriquian waters. According to Sumichrast[1] the alligator (*Alligator punctulatus*) is nocturnal and solitary, never inhabiting running or brackish water, but only the bottom of shallow or muddy streams in plains or stagnant pools in woods. The habits of the crocodile are quite different. They frequently live in numerous herds and are found in both salt and fresh waters — estuaries, rivers and lakes. Seemann, therefore, probably meant the crocodile when he wrote: "Alligators are numerous on the mouths of rivers, where they are found sunning themselves on the muddy banks." Armand Réclus[1] might have had the crocodile instead of the alligator in mind when he said: "The caymans sleep with the mouth open, the upper jaw almost vertical." Such scenes must have been familiar to the ancient Chiriquians, and may account for the characteristic way in which the jaws were represented — open mouth and upturned snout. The length of the jaw is often exaggerated, as if the artist had in mind *Crocodilus americanus*, var. *acutus*, instead of the shorter muzzled alligator. It was the crocodile also that figured as *cipactli* in the ancient Mexican picture-writing. Notwithstanding all these reasons for believing the crocodile to be the saurian depicted, it does not seem best to change the name chosen by Holmes. It is retained, therefore, with the proviso that it be given a liberal interpretation.

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[1] Quoted by A. Günther in Biologia Centrali-Americana, reptilia and batrachia, 18, 1885–1902.

A favorite representation is that showing the alligator in absolute profile (fig. 206). This is one of the more realistic forms, but contains several of the elements that have become independent decorative motives; hence it may be regarded as a sort of key to much that follows. Note especially the open mouth with teeth, the prolonged and upturned snout, and the dorsal markings on the head, back and tail. The last consists of groups of spots in a triangular and a semicircular field, and a series of spines. These represent the body-markings of the alligator (or crocodile, as the case may be). As is well known, the dorsal scutes or scales form longitudinal series. The keels or spines of the scutes may be easily seen in profile and therefore give the artists little trouble. The scales are not so conspicuous. The difficulty of reproducing them is happily obviated by placing them in triangular or semicircular fields that stand out above the dorsal line. I shall call these scale-group motives. The other markings are of course spine motives.

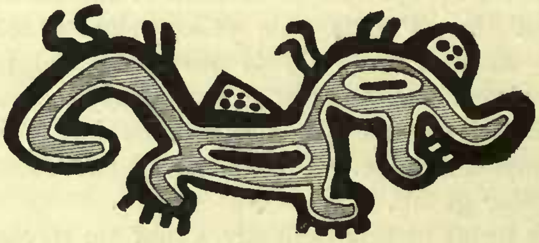

Fig. 206.—Detail showing favorite representation of alligator in profile. 2/3

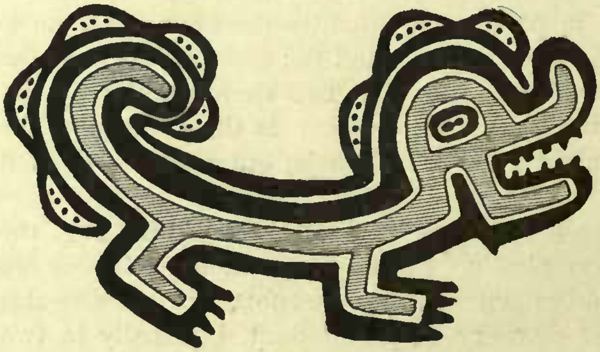

Fig. 207.—Similar treatment of the alligator. 2/3

A similar treatment of the alligator is noted in figure 207 — open mouth with teeth, and upturned snout. Here however there are no spines on the back, the body-markings being represented by only one type of scale-group motive. This is repeated three times on the head and five times on the tail.

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[1] Panama et Darien, 149, 1881.

A variation of the foregoing is seen in figure 208, which is a tracing from the largest alligator vase in the collection, the gift of Mr. Edwin Lamson of Summit, N. J. Here, the triangular scale-group motives on the head and neck rest on the apex instead of on the base of the triangle. The scales on the body and tail are grouped, but are not enclosed. The same motive is used for the teeth, the latter being confined to the upper jaw only. This illustrates one of the processes employed in conventionalism, viz., the substitution of one part for another. Attention is called to the appearance of a long crest that is attached to the back of the neck, the meaning of which is not clear; also to the downward sweep of the body curve, which is a marked feature of alligator representations in color.

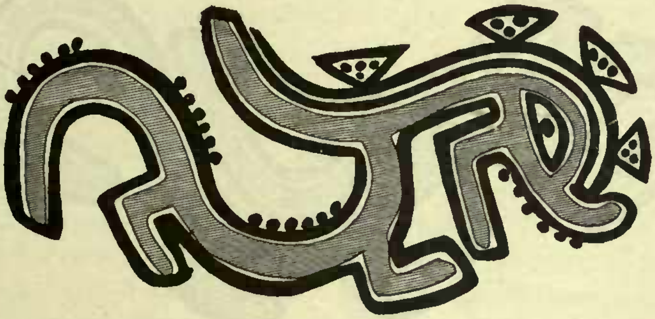

Fig. 208.—Alligator in profile with inverted scale-group motives and nuchal appendage. ¹/₂

There are a number of processes, taken either separately or in combination, that may lead to conventionalism. Some of these are: (1) The reduplication, exaggeration, elimination and fusion of parts; (2) transposition, shifting and substitution: (3) isolation of parts, and their use independently of the whole; (4) wholesale reduction and simplification; and (5) adapting the figure to fit a given space. To give balance, for example, a second head may be added, as in figure 209, which is in reality a fusion of two alligators, also carrying with it the elimination of the tails and hindlegs. Elimination may arise simply from lack of space, as exemplified in this case by the loss of the nuchal crest from one of the necks. Triangular scale-group motives are recognized on the head and neck at the left. Those on the right are also triangular, but stand on their apices and

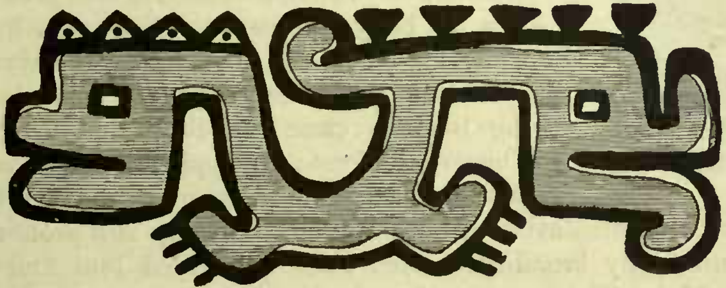

Fig. 209.—Detail showing fusion of two alligators in profile. ¹/₂

are filled in solid instead of being open dotted fields. This type was noted in the lost color ware (see Pl. XXXI, fig. *f*).

The exaggeration of parts is well shown in figure 210, where the jaws, particularly the lower one, are exceptionally long. Both are recurved. The nuchal crest also reaches its maximum, and the downward swing of the body-line is typical. Another characteristic of the alligator profile is seen to good advantage here, namely, the longitudinal rise of the fronto-nasal region.

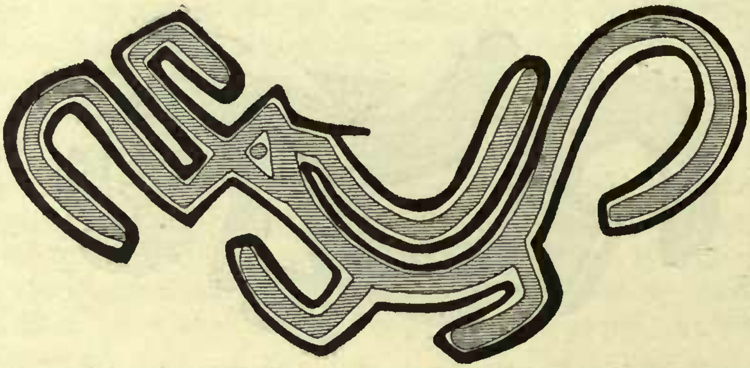

Fig. 210.—Alligator profile showing exaggeration of jaws and nuchal appendage. ¹/₁

That figure 211 came from a panel is evident from the disposition of parts. The head is turned so as to fill the hollow of the body curve. The shortness of the panel made it expedient, also, to flex the tail sharply and shorten the nuchal crest. The top of the head is adorned with four typical spine motives. The same relative position of head, body, legs and tail is seen in figure 212, except that here the lower jaw is longer than the body and tail combined and the nuchal crest unduly developed, apparently as a counterpoise to the extreme length of jaw. In figure 213, it is the body, legs and tail that suffer from reduction, while the head and nuchal crest remain prominent.

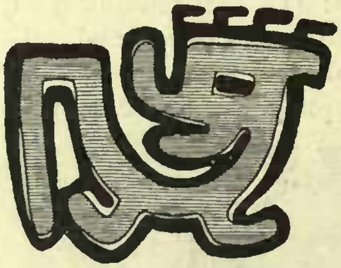

Fig. 211.—Alligator profile adapted to fit the space at hand. ¹/₁

Some of the vases from which several of the foregoing tracings came are illustrated in Plate XXXIII. These vase forms are typical for the group, with the possible exception of figure *a*, in which the setting of the neck on the shoulder deviates from the type. The slip is a pronounced salmon color. The unusually broad decorated zone is divided into four panels, two long and two short. The long panels are each adorned with the figure of an alligator. The two form a procession, i. e., each when turned toward the observer is found to be facing toward the right. The framework is in red. The outlines and superficial markings representing the scales, spines, toes, and even the teeth, are in black. A short stroke of black also denotes the central part of the body and the eye. Practically all the features common to the conventional representation of the alligator are present here — the wide-open mouth, with pronounced jaws and upturned snout; the dotted protuberances (scales) on head and back; the spines on head, neck and tail; and the curve of the back emphasized by the uplifted head and tail.

In both form and finish, the piece shown in figure *b* is more characteristic of the alligator ware. The line of the shoulder passes without a break into the line of the neck. The latter is slightly flaring and ends bluntly without any marked lip differentiation. The entire outer surface, except the lip, is finished in a pale yellow slip. There is no paneling about the two alligators on the shoulder, the head of each reaching almost to the tail of the other. Each figure is in black and red, the outline being a slender band of black and the interior, red. The shape is influenced by the contour of the surface to be decorated, which in a measure at least would account for the upturned snout, the very long lower jaw curving downward and backward on itself, the curve of the long tail, and the enormous development of the occipital or nuchal appendage — a sort of exaggerated spine, with a smaller spine in black near its base. The characteristic swaying downward of the back, noted by Holmes, may also be traced to the same source. Details such as teeth and toes are left out. The profile is, as usual, absolute. Very similar to the preceding is figure *c*, reproducing a vase discolored by smoke. The shape of the vase is practically the same, as is also the treatment of the alligator, except that the secondary spine is missing and the hanging lower jaw curves upward into the wide-open mouth, instead of downward.

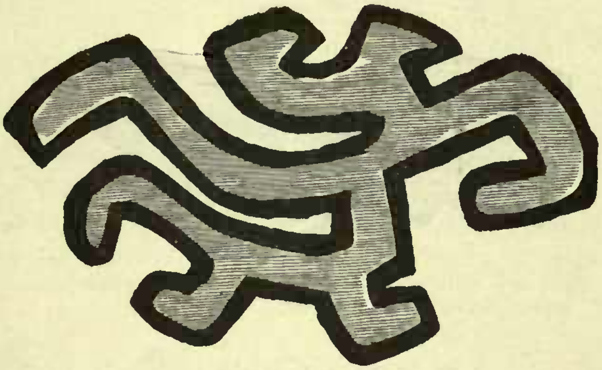

Fig. 212.—Profile of alligator with head turned backward, the long lower jaw being balanced by the well developed nuchal appendage. $^2/_3$

The design on the shoulder of a double-necked vase from Bugavita (fig. *d*) looks at first glance like a meaningless bundle of waving arms. The groundwork is red, as usual, and the outlines are in black. The whole is a conventional treatment of the alligator, the neck being turned so as to project the exaggerated jaws backward over the entire length of body and tail. The lower jaw, which is turned downward at the end, follows rather closely the curve of the back and tail. The snout is upturned. There is a long curved nuchal appendage acting as a balance to the prolonged mandible on the left. The space between and below is amply filled by a relatively small trunk, tail and legs. The alligator on the opposite side is reproduced in figure 212.

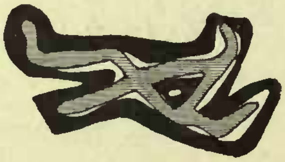

Fig. 213.—Profile of alligator in which only the head and nuchal crest remain prominent. $^2/_3$

The lines are much easier to follow in figure *e*, where the jaws are comparatively short and straight. The nuchal appendage, though reduced in size, is still prominent. Somewhat more sketchy is the representation of the alligator in figure *f*. The head proper is the most prominent part, the red foundation enclosing a triangular space in which the eye is set. With this head triangle as a center, the boundary lines are simply continued to form the other parts. The legs are eliminated. The body and tail are straight and much shorter than the nuchal appendage. These are balanced on the right by an upturned snout and drooping lower jaw.

A well-balanced but angular and stylistic representation of the alligator is shown in figure 214. Conventionalism is also somewhat heightened by the breaks in the black outline at the ends of the feet and the jaws. The balance would be complete if the tail were replaced by a head. This is what has been done in figure 215, which is genetically related to the foregoing and which presents a highly conventionalized two-headed alligator. The black outlines are still further broken up and dots enough to answer for eyes as well as teeth are placed in each of the wide-open mouths. Another double-headed alligator is seen in figure 216, the neck of the head on the left being supplied with a nuchal crest. Here the dots representing eyes and teeth are placed where space invites, rather than where they belong.

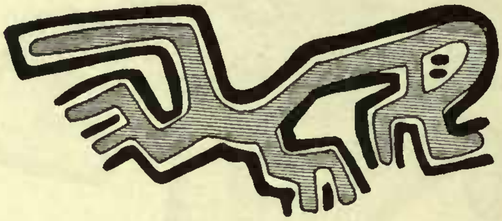

Fig. 214.—Well-balanced but angular and stylistic representation of the alligator. $^2/_3$

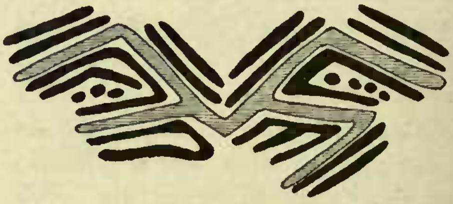

Fig. 215.—Highly conventionalized two-headed alligator. $^2/_3$

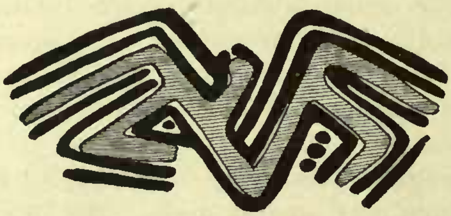

Fig. 216.

Fig. 216.—Double-head alligator, with nuchal crest on the head at the left. $^2/_3$
Fig. 217.—Two-headed alligator showing transposition of parts, both nuchal crests being attached to the same neck. $^2/_3$
Fig. 218.—Two-headed alligator with nuchal crests absent. $^2/_3$

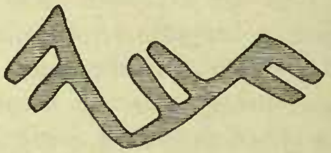

Fig. 217.

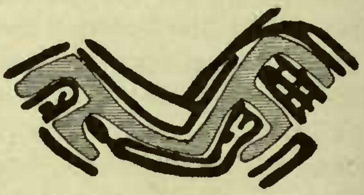

Fig. 218.

A good example of the transposition of parts is given in figure 217, both nuchal crests being placed on the same neck in order to avoid interference and to harmonize with the paired jaws at each end of the motive. The outlining black color is entirely wanting. In the next illustration (fig. 218) both nuchal crests are lacking, but the setting of black reappears. The teeth in each mouth are indicated in a highly diagrammatic fashion.

A series of motives, each representig the double-headed alligator, is seen in figure 219. The unmistakable elements are: the downward swing of the body-line, which is angular instead of curved; scale motives in the first two; and spine motives in all, those in *a* being particularly characteristic. These four tracings are from one vase, filling a narrow zone on its shoulder.

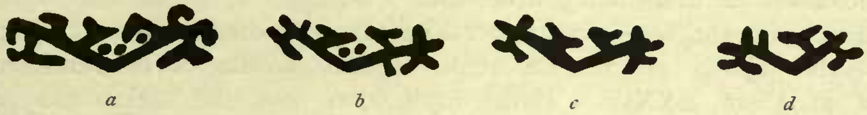

Fig. 219 *a–d*.—Series of motives, each representing the double-headed alligator. 1/1

In figure 220, there is a separate body-curve for each alligator; in the hollow of each curve is a dash of paint to represent the body-markings, distinct scale motives being attached to two of the three. The design in figure 221 is similar but more simplified. The four strokes of the brush at each bend in the compound body-line seem to suggest the union of four separate alligator motives, just as the preceding figure suggests three.

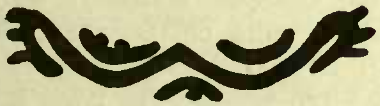

Fig. 220.—Multiple alligator motive. 1/2

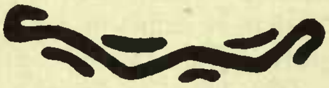

Fig. 221.—Simplified multiple alligator motive. 1/2

Figure 222 probably represents two body-lines combined, each being accompanied by a single scale symbol. The body-curves of two alligators are often joined in such a manner as to form a sigmoid curve, as in figure 223, a simple type in which the scale motives are left out.

In figure 224 there is a simple horizontal body-curve, with a distinct differentiation of head and tail, and with a spot in the hollow of the curve to indicate the dermal markings — in other words, the alligator is in profile. This is an excellent example of conventionalism by means of a wholesale reduction and simplification of parts — conventionalism that has reached the hieroglyphic stage. How easy it would have been to make use of this readily executed symbol in a system of

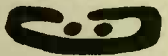

Fig. 222.

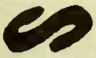

Fig. 223.

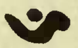

Fig. 224.

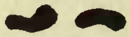

Fig. 225.

Fig. 222.—Detail probably representing two body-lines, each with a single scale symbol. 3/2
Fig. 223.—Sigmoid curve representing two body-curves. 3/2
Fig. 224.—Conventionalized alligator in profile; hieroglyphic stage. 3/3
Fig. 225.—Wholesale reduction and simplification of the alligator in profile. 3/2

writing as did the ancient Egyptians, for example. It could have stood for the word *alligator* or for some attribute of that animal. There is however no evidence that the ancient Chiriquians made any such use of it. They were content apparently to employ this symbol in a decorative and ceremonial sense only. The spine motive and the scale-group motive, both of which have already been described, could also have been employed as hieroglyphs combined with or in place of the motive representing the whole animal.

Wholesale reduction and simplification of the profile view of the alligator is seen in figure 225: nothing being left but the body-line, which is produced by a short stroke of the brush. This form of the alligator motive usually occurs in series, the alternate units being inverted.

Familiarity with the foregoing illustrations from tracings will make it possible to follow the rapidly progressive steps in the process of conventionalization portrayed in Plate XXXIV. Both duplication and elimination are noted in figure *a*. There is a head, for example, at either end of the common body, and, for lack of space, only one is provided with a nuchal appendage. The eyes and teeth are placed in an angle below each lower jaw. The space on the right, being larger, is filled in with three black spots instead of one. The black outlines are broken at all the ends of the red framework, while in places they are doubled. The design on the opposite side is practically the same except that the nuchal appendage is more conspicuous. A similar conception of the alligator motive may be seen in figure *b*, except that it is treated in a still more summary fashion. The nuchal appendage has disappeared entirely, but the curve of the back that is common to both heads is quite characteristic. This small vase is slightly angular at the periphery.

The vase reproduced in figure *c* is divided into zones. The lower is red. The upper is outlined by two red bands. Within these are two black bands, which in turn limit the field containing the symbols of life forms, the latter also in black on a pale yellow paste. The neck is unadorned, while the lip and inner surface of the aperture are finished in a red pigment. The characteristic curve of the back is to be noted in the alligator motives. Fore- and hind-feet point in the same direction; otherwise it would be impossible to distinguish the head from the tail. In one instance, the body-line of the alligator takes the form of a simple scroll. Two dorsal-view motives serve to divide this narrow zone into two panels.

An interesting vase from Divala is shown in figure *d*. The lower zone is red. The black and red bands and the alligator motives (in black) of the upper zone are on a pale yellow slip, which is continuous over the neck. The lip and inner surface of the aperture are finished in red. A series of alligator motives, all essentially alike, but illustrating progressive reduction and elimination of parts is carried around the shoulder in a continuous panel (see fig. 219).

In figure *e*, the horizontal plane of greatest diameter is situated much nearer the neck than is usual for this group. The broad lower zone is red. The black and red bands of the upper zone enclose two panels. Each of these is filled by a row of alligator symbols in black. The ends of the body-line are folded back until they almost meet. Within are spots (two to four) representing the dermal markings. The alternate motives are inverted. This is also true of figure *f*, where simplification and general reduction reach their limit, the abbreviated body not being accompanied by markings of any kind.

The significance of some of the zonal shoulder decorations in Plate XXXV is more or less problematical. The alligator motive is recognizable in figure *a*. Two or three body-lines are united, the free ends being treated as heads. Secondary curved lines fill in the remaining spaces between the upper and lower boundary lines. This design is repeated three times with but slight variations. A similar motive is seen in figure *b*, where there is an additional body-curve in each group, and the design itself is simplified.

The elaborate motive on the shoulder of the vase reproduced in figure *c* is referable to the alligator, the spine symbols being easily recognizable. It is repeated on the opposite side with some modification (fig. 226 *a*). Alternating with these are much smaller and simpler alligator motives (fig. 226 *b* and *c*). The narrow shoulder zone in figure *d* is divided into two panels, each being ornamented with the dorsal-view motive — three parallel lines, the outer ones bearing spines along their external margins. The decorative motive in figure *e* may be a variant of the same thing. The shoulder of one vase (fig. *f*) is decorated with concentric rings. These are variously connected so as to form pairs; in one instance there is a single group, attached to the outer ring of which are two spirals obviously representing the second group. The relationship between spirals and concentric rings in Egyptian art has been pointed out by Goodyear.[1]

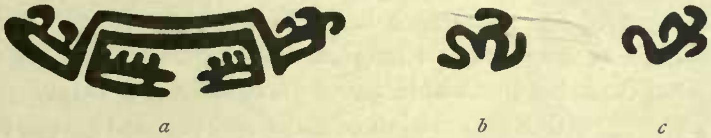

Fig. 226 *a—c*.—Conventionalized alligator designs. 1/2

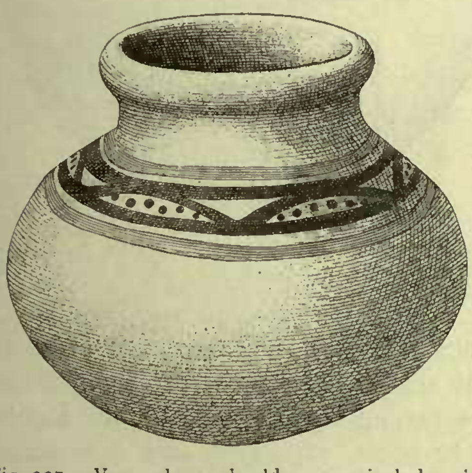

Fig. 227.—Vase whose shoulder zone includes six arched panels filled with scale symbols; from Divala. Alligator ware. 1/2

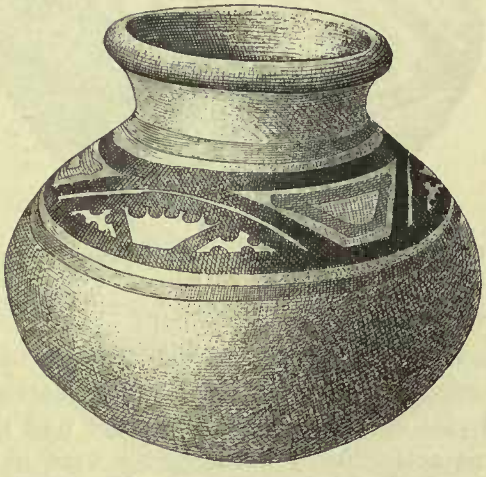

Fig. 228.—Vase whose three arched panels are associated with scale motives. Alligator ware. 1/2

It has been noted that the curved band representing the body-line of the alligator is usually accompanied by spots, used as scale symbols. This combination is seen in figure 227, a vase from Divala. The narrow shoulder zone includes six small arched panels, each filled with spots. The alternating spaces are undecorated. A similar motive is seen in other specimens, where the arched panels are reduced to three, alternating with wider intervening open spaces. The same though somewhat more elaborate motive is reproduced in figure 228. Here the intimate association of the scale symbols with the curved bands representing the body is suggestive. There is plenty of room for the spots in the center of these enclosed fields, but they cling everywhere so closely to the boundaries as to appear like half-disks.

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[1] Wm. H. Goodyear. Grammar of the lotus, Pl. VIII. London, 1891.

Three arched panels with decorated intervening areas also occur in figure *a* of Plate XXXVI, the design in each arched panel being the dorsal-view motive. Freedom in the treatment of the arched panel runs through the entire series represented in this plate. The arched panels are quite large in figure *b*, the spaces between them and surrounding the neck being in the color of the slip. Each panel enclosed two groups of concentric triangles, the angles of the inner ones being marked with dotted dentals; the whole panel decoration is a variation of the dorsal-view motive. The suggestive association of spots and crossed zigzag bands is shown in figure *c*, each band being a multiple body-line accompanied by dermal markings. There is a multiplication of the arched bands tangent to the neck in figure *d*, a vase from Divala. What remains of the enclosed field is crossed by six short vertical bands, the outer ones bearing lateral spines — a typical example of the dorsal-view motive. This vase and the three preceding (*a*, *b* and *c*) are highly characteristic of the alligator ware in regard to paste, slip, form and decoration. The two vases (both from Divala) represented in figures *e* and *f* are perhaps not so typical, except for the character of the black and red paint used and the treatment of the arched panels. The slip is thinner and of a duller hue. Both the neck and the lower zone are treated to a coat of red, leaving the slip to show only on the shoulder. The short vertical bands crossing each panel in figure *e* are accompanied by dotted dentals (the scale-group motive). This combination represents a section of the alligator's body viewed from above, as first noted in the lost color ware (see Pl. XXXI). The panel decorations in figures *a*, *b*, *f* and *e* are variants of the same motive.

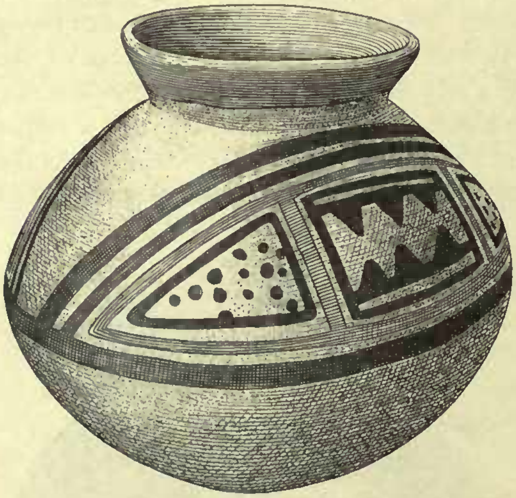

Fig. 229.—Vase having but two arched panels in which scale- and spine-motives are grouped; from Divala. Alligator ware. $^1/_3$

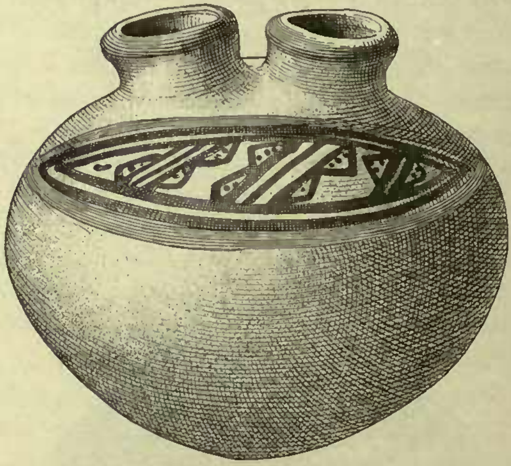

Fig. 230.—Double-necked vase with the dorsal-view motive as a panel decoration; from Bugavita. Alligator ware. $^2/_3$

The number of arched panels is reduced to two in figure 229, reproducing a vase from Divala. The three divisions of each panel are ornamented with spine- and scale-symbols. One of the two characteristic types of dorsal-view motives is seen in the two panel decorations on the shoulder of a double-necked vase from Bugavita (fig. 230); the other type is the design on the shoulder zone in figure 231, which alternates with quadrangular panels in red. The decorative motives running through a series of small vases (figs. 232–236) consist of the diagrammatic use of the elements of these two types, as well as the profile view of the body-line, either compound (fig. 235) or simple (fig. 236). The latter motive is often repeated three times on the lip (figs. 232, 235, 236).

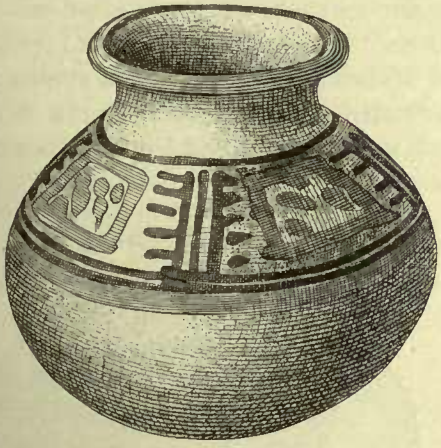

Fig. 231.—Vase in which the dorsal-view motive alternates with quadrangular panels. Alligator ware. ²/₃

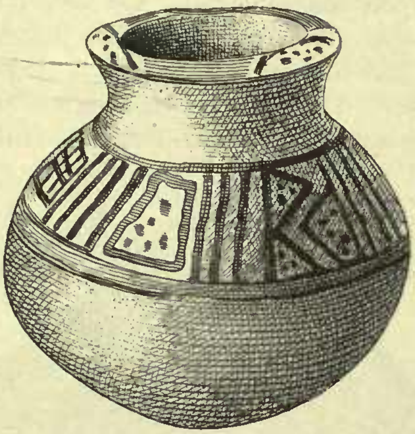

Fig. 232.—Vase with alligator motives on lip and shoulder. Alligator ware. ²/₃

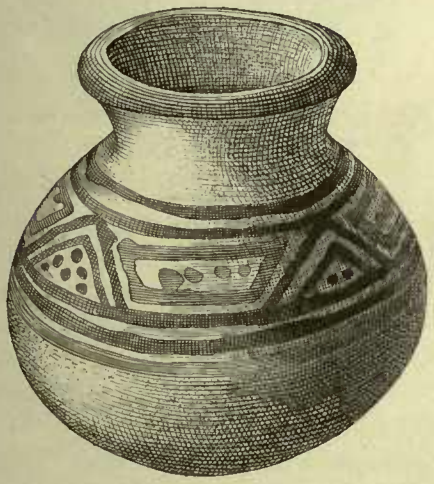

Fig. 233.—Vase in which the alligator motives are obscure. Alligator ware. ²/₃

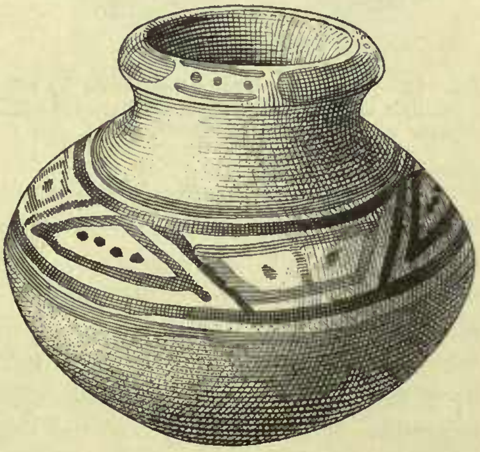

Fig. 234.—Vase with obscure alligator motives on lip and shoulder. Alligator ware. ²/₃

There is a series of vases belonging to the alligator ware in which the decoration consists of four rosettes painted on the shoulder and unaccompanied by arched panels or horizontal bands (Pl. XXXVII, with the exception of fig. *a*). The rosettes are usually composed of triangles, spots, and a cross, in varying combination, all of which may be referred to elements of a life form, presumably the alligator. The painted designs are placed on slightly raised nodes apparently produced by pressure from within of the middle finger tip.

In a small vase from Bugativa (fig. *b*), the outer circle of the design is red; the inner, black. Within are two spotted triangular fields, separated by a spool-shaped space in red. On the lip, directly above each rosette, is an alligator motive consisting of the body device of curved and red bands accompanied by spots on the concave side only. This style of lip decoration is confined to the smaller vases. The rosettes of figure *c* are each bounded by three circles, the middle one only being red. The field within is almost completely filled by three triangles bearing spots (the scale-group symbol). The triangles are disengaged from the inner circle in figure *d*, and the interspace is marked by a cross. The nodes are scarcely perceptible in figure *e*, and the number of concentric rings is reduced to two, the inner one enclosing a cross surrounded by four triangles. The nodes are very much exaggerated in figure *f*, and are not produced by pressure from within, but are applied to the outer surface. The inner circle is again marked by a cross and the intervening spaces by triangles. The various stages in the transition from the rosette to the cross are represented in the collection. In one vase the cross alone remains, a typical Greek cross with foundation in red and outlines in black. The same disposition of the two colors has already been noted in the more elaborate representations of the alligator.

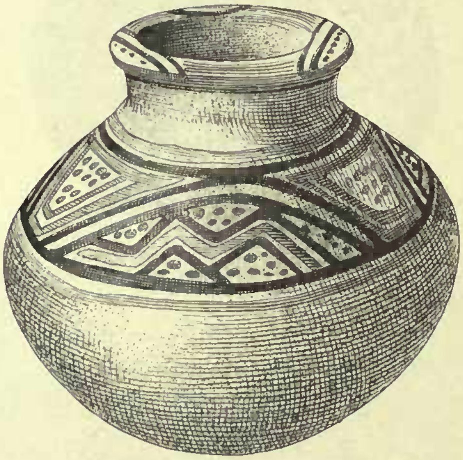

Fig. 235.—Vase with alligator motives on lip and multiple body-line as a panel decoration. Alligator ware. $^2/_3$

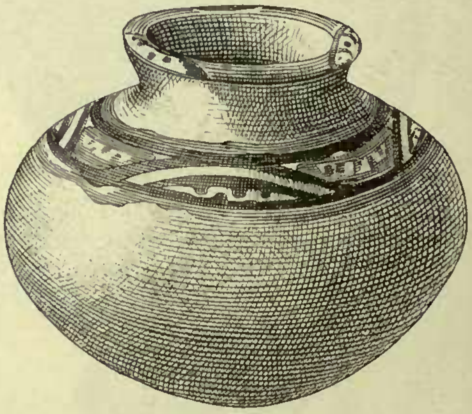

Fig. 236.—Vase with simple body-line motives on shoulder and lip. Alligator ware. $^2/_3$

Plastic features applied to the shoulders of vases belonging to the alligator group are comparatively rare. A representative series is given in Plate XXXVIII. Painted ornament accompanies the relief, but the two do not necessarily refer to the same animal. The plastic elements in figure *a*, a vase from Divala, consist of a head frankly human, balanced on the opposite side by a short upturned animal tail. Alternating with these features on either side is the painted representation of an alligator in black and red, with its characteristic hooked snout, bunched dermal markings and pronounced body-curve; toes, teeth and eye are all indicated. The recurved lip and angular outlines of this vase are unusual for this group.

The alligator type of ware is followed closely in the outlines of figure *b*. The two relief ornaments are placed on a level with the union of neck and shoulder. Both are marked by two cross bands of black and are alike in shape and size, probably representing two tails instead of two heads. Alternating with these, but lower on the shoulder, are two reptilian forms, probably the alligator, executed in red and black. The treatment is unique, the view being dorsal or ventral instead of the lateral aspect or profile. All four legs are represented, but there is some doubt as to which is the head and which the tail. The designs on the opposite sides are practically identical. The painting was done on a polished yellow surface. Paste of a lighter color was afterwards spread over the entire surface of the vase, except these painted portions.

The two plastic heads are unmistakable in figure *c*. The outlines of the alligator painted on the shoulder of the vase are angular, with the exception of the dorsal curve. Another step in the diagrammatic treatment of the alligator form, a common body with a head at each end, is shown in figure *d*, where the black contour lines are broken at the angles. A similar angular motive consisting only of the red foundation occurs in figure *e*. The two prominent nuchal appendages are both placed on the same neck so as to balance the pair of jaws at either end of the figure. Scale- and spine-symbols are wanting. The animal head and tail, as relief features, are reduced to mere nodes in figure *f*. Reaching from head to tail on either side, is a panel that contains a multiple body-line in red. Accompanying this line are the usual dermal markings in the hollow of each body-curve.

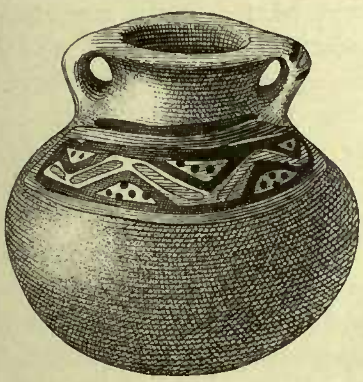

Fig. 237.—Vase with shoulder panels showing obscure multiple body-line, accompanied by body-markings. Alligator ware. 1/2

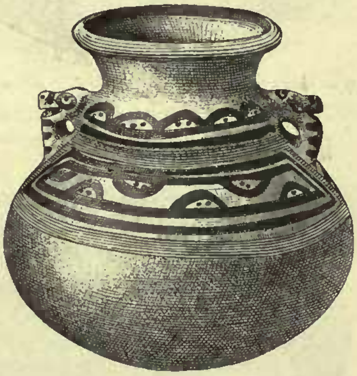

Fig. 238.—Vase with small vertical loop-handles and the alligator motive as a shoulder decoration. Alligator ware. 1/2

The identity of the body-line is somewhat obscure in figure 237. It takes a zigzag course through the center of the shoulder panel, is broken at the angles and everywhere accompanied by dotted dentals representing body-markings. Vertical loop-handles, as seen here, are of rare occurrence in the alligator group. In figure 238 the two small handles represent an animal head and neck. The nose is slightly upturned and teeth are visible in the open mouth. The two panels on the shoulder of the vase are filled in with scale-group symbols 'segments of circles enclosing dots.' Above each panel is a row of similar markings.

There are a few vessels without necks. Such, for example, is the one represented in figure 239. Two animal heads on opposite sides constitute the relief ornament. The rows of dots in the small open fields of the alternating panels are all that is left to suggest the alligator. In another vessel of similar type (fig. 240), the panels are arched and between them appear in relief the head and tail of some reptilian form, the tail being turned to one side.

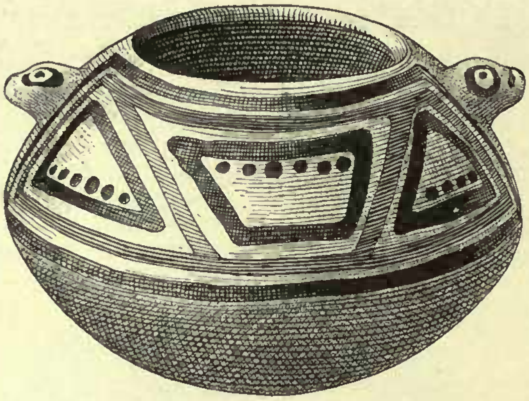

Fig 239.—Vase without neck, the relief ornaments being two opposed animal heads. Alligator ware. ¹/₃

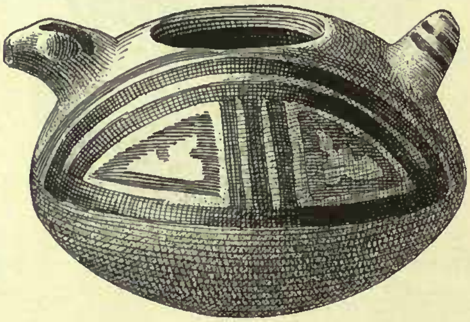

Fig. 240.—Neckless vase with dorsal-view alligator motive as a panel decoration. Alligator ware. ¹/₃

Vessels of this group mounted as tripods are comparatively rare. The tripod supports are usually short, solid, pointed cones that are marked by horizontal black bands, as seen in Plate XXXIX, where the variations in the form of the body are also fairly well indicated. In figure *a,* a vase from El Banco, the neck is quite short. The shoulder decoration consists of three panels, each bearing a series of scale-group symbols. Each of the two horizontal panels in figure *b* are double. The four smaller black panels in a framework of red are all treated in practically the same manner — a triangular (or trapezoidal) space in the middle and a trapezoid at either end, the three open fields thus formed being decorated with scale- and spine-symbols.

Only spine symbols decorate the neck of a wide-mouthed tripod vase from Jacu (fig. *c*). These are sharply recurved and distributed in pairs, rising from the upper one of three black bands that surround the neck. Between the second and third band is a broad red band. Even less easily interpreted are the spine symbols in figure *d*, a shallow tripod bowl from Divala. The visible interiors of shallow bowls are usually painted, this one being an exception. It is somewhat more highly polished than the exterior, and the slip, if used at all, must have been very thin. The rim is painted red. Below it, on the outer surface, are two black bands. Next comes a red band, hanging from which is a series of spine symbols in black. The latter would be inexplicable but for the use of the same motive in other connections. The legs are banded, as usual, and probably represent life forms.

The bowl of a tripod from Divala (fig: *e*) is not so shallow as the preceding, and the rim, being gently incurved, does not mark the level of the greatest horizontal diameter. Nevertheless the interior is painted red. The lip and outer surface, except the delineating colors, are finished in a thick coat of cream slip. The zone between the rim and the base of the supports is banded horizontally and divided into three panels, each of which contains scroll patterns, whole as well as broken. In figure *f* we have once more the attractive shoulder decoration consisting of three arched panels (see Pl. XXXVI). The well-preserved red and black delineating colors have an effective background in the generous use of a pale yellow slip.

A number of the tripods combine plastic and relief decoration, as may be seen in Plate XL. The head and tail are applied to the shoulder of the vase without affecting the general globular form of the body, which is nevertheless intended to take the place of the animal body. The identity of the animal representation in the round can not always be determined with certainty. It may or may not refer to the same animal as the accompanying forms executed in color. This is probably the case in figure *a*. The life form painted on either side is the alligator, with the characteristic attitude of the jaws, nuchal appendage and downward curve of the body.

Somewhat similar in general outline as well as decoration is the tripod vase represented in figure *b*. The life form in the round may be the alligator, particularly since there are two painted scale symbols on the back of the head. This view is strengthened by the fact that the two alligators painted on the sides are oriented in such a manner as to correspond to the form in relief, i. e., all three heads are pointing in the same direction. The tendency of the artist if not restrained by other considerations is to paint an animal form on one side, and after revolving the vase until the opposite side appears, paint the second figure exactly as he did the first. The two thus form a procession. This is true in almost every instance, but is not in case of this specimen where the two painted life forms, if they could move forward would meet each other, instead of falling one behind the other. The typical features of the alligator are emphasized in both.

There is a peculiar combination of relief and painted decoration in figure *c*. The relief portions of this vase consist of a simplified head with longitudinal black bands; eyes (or breasts) set far apart and surrounded by black circles; long curved fillets of clay representing eyebrows, or arms, edged with black bands and also marked by cross bands; and, on the opposite side, a similar fillet to represent the tail. This is straight, being carried from the neck of the vase downward to the level of its greatest horizontal circumference. The head and eyes in relief are supplemented by painted representations of toothed jaws on either side of a median plane. The throat is painted red; which color is also carried downward on the shoulder of the vase like a bib or apron. Between the tail and the curved eyebrow (or arm) on each side are panels, both containing representations in black of the alligator. One of these (fig. 241 *a*) is unmistakable, with its upturned snout and long nuchal appendage which, like the head, back and tail, carries a series of scale symbols. The lower jaw serves as a foreleg. The other (fig. 241 *b*) could not be recognized but for its association with this particular class of ware.

Figure *d* presents no original features. The sculptured head and tail (the latter bent sidewise) are not distinctive. The two panels are decorated with scale-group symbols. The smallest vessel of this group (fig. *e*) is but 45 millimeters in height, with a capacity of less than 20 cubic centimeters. A compound tripod with two of the six legs eliminated is shown in figure *f*. There is no connection between the interior of the two vessels. The most interesting part of their decoration consists of a series of alligator motives about the two rims — the downward curving body-line with a single dot above.

A number of unusual forms are brought together in Plate XLI. Figure *a* comes very near to being a complete zoömorphic unit. It is a tripod instead of a quadruped, with two legs in front and but one leg behind, which is in a median plane. The tail forms a vertically placed loop-handle, emerging from underneath the carapace to fuse with the hindleg. The legs are marked with parallel transverse lines in black, suggesting the carapace motive, in which case each leg would represent an armadillo. The head is well defined, the nose being pointed downward as if to reach the ground. The ears are represented in the round as well as by means of black paint; the eyes, by paint alone — a black circle on cream slip surrounding a black spot. The carapace, like the ears, is represented both in the round and in color. Its anterior and posterior regions are marked by black spots on the cream slip. The banded character of the middle region is indicated by transverse parallel lines in alternating groups of black and red. The circular aperture cuts all three regions of the carapace; its margin or rim is painted red. The black spots on top of the head also represent dermal armor. The vessel is covered inside and outside by a uniform slip over which the delineating colors are applied, except on the interior and the outer ventral surface. The alligator motive is entirely wanting.

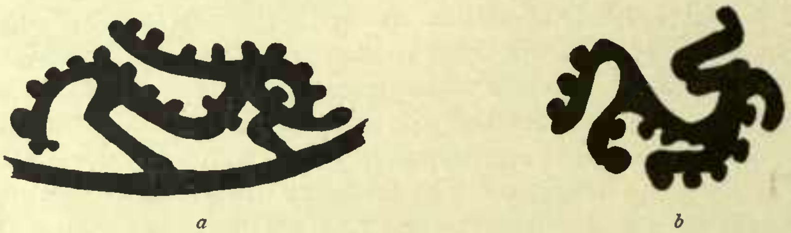
a *b*

Figure 241 *a*, *b*.—Designs representing conventionalized alligators. 1/1

There is nothing to suggest the alligator in figure *b*, unless it is the dotted dentals on the tripod supports. The latter represent animal heads, are hollow and supplied with pellets. The periphery of the vase is decorated with eight prominent crablike spines and what is probably intended for a head.

A broken vase from San Carlos, eighteen miles northwest of David, is reproduced in figure *c*. With the broken part has disappeared the tail and body of a large painting of an alligator that occupied the rear panel, leaving only the head and nuchal appendage, with spine symbols. A fragment carrying a short tail in the round to match the head opposite has been preserved also among the fragments. In front is an apron-shaped field covered with ocellated markings resembling the coat of the jaguar. At the top, this apron is cut so as to fit about the neck of an animal, probably the jaguar, with wide-open mouth showing canine teeth, and at the sides it is so cut as to leave free the arms that are set akimbo. The whole evidently represents the jaguar-man or, to be more exact, the jaguar-god (see also fig. 244). The two tripod supports in front are alike, but differ in shape from the one behind. A similar somewhat smaller specimen from Mercedes, Costa Rica, belongs to Mr. Minor C. Keith.

Another vase not at all typical of this group is reproduced in figure *d*. The life features in the round consist of a head with wide-open mouth, probably the jaguar; below which is a semicircular apron-like pattern, a drooping tail and rather long arms that hang free from the body, each hand resting on the base of a tripod support. One arm is lost. Much of the paint has disappeared; the highly original design on the neck however is still practically complete.

A thick-walled and thick-lipped bowl from Jacu (fig. *e*) is provided with an annular base — the only example of this type in the group. The base and the interior are painted red. The lip and outer surface of the body are finished in a pale yellow slip. A series of dotted triangles, or scale-group symbols, in black encircles the vessel.

The form reproduced in figure *f* is unique. A small shallow cup with vertical walls is supported by three grotesque half-human forms, whose feet rest on a ring-shaped base and whose extended arms help to bear the weight of the cup. Three panels decorated with alligator motives alternate with the heads of the supporting figures. The kinship between this form and the so-called stools made of stone (see Pl. IV), as well as modeled in clay (see Pl. XLVI), is striking, the main difference being that the cup is replaced by a slightly concave seat plate.

Another conception of the use of engaged, plastic life forms as supports for vessels is illustrated in Plate XLII (fig. *c*). This vase is one of the gems of the de Zeltner collection and was given to him by Señor Obaldia, formerly Vice-President of New Granada. It was first inadequately figured and described by de Zeltner[1] and later mentioned by Holmes when describing a piece somewhat similar, though neither so large nor so perfect. The Yale specimen is 39.3 centimeters long, 28.5 centimeters in height and 18.5 centimeters in breadth.

The bottom is perfectly flat, in outline like an ellipse flattened a little at the sides. The latter rise almost vertically to meet the flattened shoulders at an angle. The neck is long, round in section and gracefully flaring. The supporting forms at either end are apparently human and of the female sex. Their bodies are an integral part of the body of the vase, the wall being pushed out to form a prominent abdominal protuberance. The head, rising from the angle at the shoulder and gently inclined forward, is crowned and hollow, the long transverse slit at the top communicating with the interior of the vase. The features are all rendered plastically and emphasized by paint. The outline of the rim of the ear is characteristically human. The bulging eyes are protected by prominent brows. The nose resembles the beak of a bird, which was the Chiriquian's favorite model for the human nose, as noted on a preceding page. Some of the features are seen to better advantage in figure 242. The parted lips, oval in outline, reveal three long incisor teeth. The feet are three-toed and in the sole of each there is a round perforation communicating with the interior of the hollow leg. Attention is called to the painted, tongue-shaped breast ornament, reaching down well over the abdominal protuberance. A similar ornament is noted elsewhere in this group (see fig. 244).

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[1] Note sur les indiens du département de Chiriqui, 8, 1866.

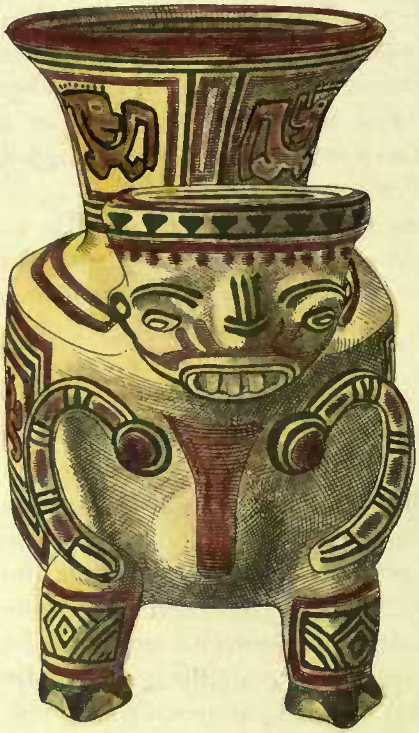

Fig. 242.

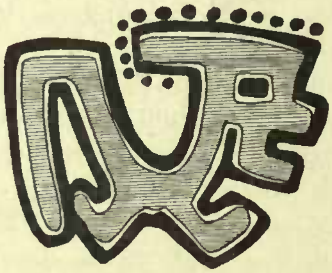

Fig. 243.

Fig. 242.—Elaborate vase supported by human figures; end view (see Plate XLII, fig. *c*). Alligator ware. 1/3

Fig. 243.—One of the alligator figures decorating the neck of the preceding vase. 2/3

The long panels on either side are ornamented with a superb example of the two-headed alligator. The dermal markings on one head and neck being the same as a decorative motive on the crown of each female head (fig. 242). The neck of the vessel, resembling in shape an inverted bell, is surrounded by four panels, each filled with an excellent figure of the alligator, one of which is reproduced in figure 243. The execution of the painted designs is equal to the skill displayed in the modeling.

The rare specimen reproduced in figure 244 is a fantastic combination of feline, serpentine and human characters, and serves as a rattle or a receptacle at will. It is complete barring a small chip off one heel, revealing the nature and color of the paste, which is red throughout, the hue deepening from the surface inward. The slip is the usual pale yellow.

The body, legs and arms are human, excepting the hands, which are converted into serpent heads by means of a terminal slit for the mouth and black spots for eyes. The feet are nondescript, the prolongation of the heels being equal to that of the toes. The same type of foot is used for birds, which makes possible the erect posture for biped figurines. For that reason this particular specimen was catalogued by de Zeltner as *figure debout* simply. But it is in more stable equilibrium when lying on its back, in which position the greatly distended stomach and chest, in the shape of a hollow, truncated cone, serves as a vessel.

The head is apparently that of the jaguar, *Felis onca*; or perhaps the ocelot (Mex. ocelotl), *Felis pardalis*. The mouth is open, the lips being drawn back to reveal the teeth. The upper and lower rows are separated by horizontal openings in the region of the molars and of the incisors. The overlapping of the long canines is admirably indicated by two teeth on either side that reach from the upper to the lower alveoles. Perforations representing the nostrils and the external auditory openings also communicate with the hollow interior of the head, which is supplied with pellets. The head therefore functions as a rattle. The neck is perforated transversely as if for suspension.

The peculiar throat and chest decoration in red, and reaching down to the level of the mammæ, has already been noted (see fig. 242). It may mean an element of ceremonial apparel. This is probably the jaguar-god (see also Pl. XLI, fig. *c*). The now familiar scale-group motive of dotted triangles, and also meanders accompanied by dots, is distributed over the various parts. The decorator may or may not have had the alligator in mind when finishing this particular piece. The origin of the motive however is beyond question, whether the artist was conscious of it or not.

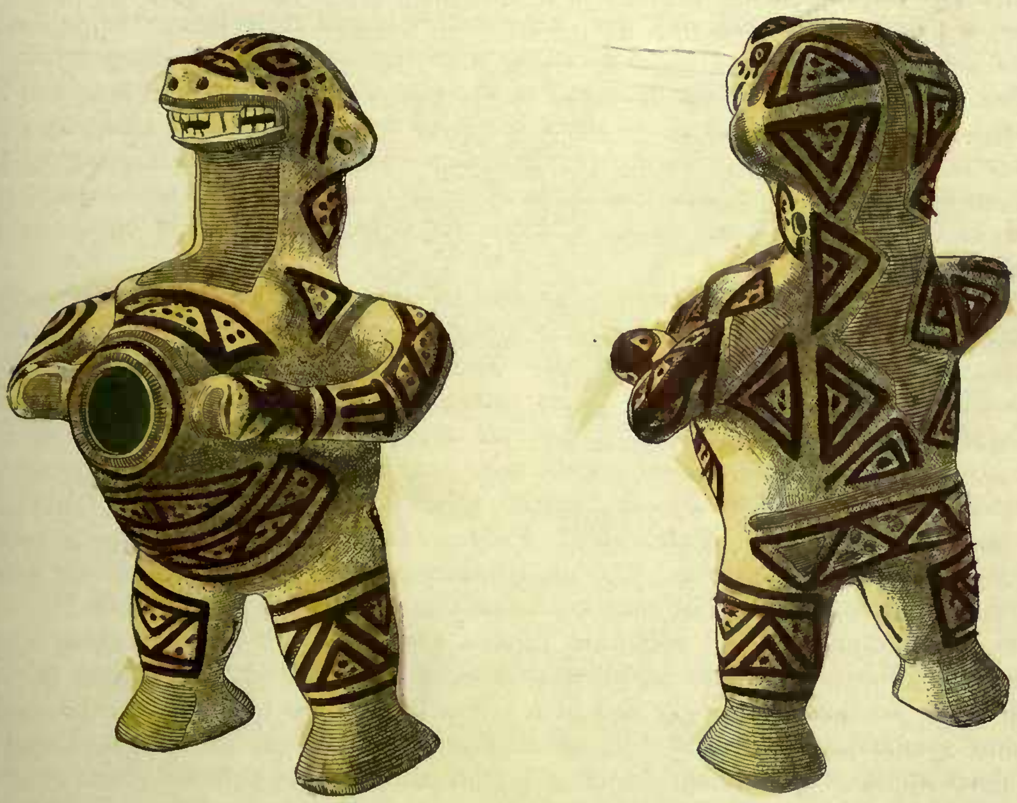

Fig. 244 *a*, *b*.—Jaguar-god ornamented with alligator motives and serving both as rattle and receptacle. Alligator ware. $^1/_2$

The happy fusion of vase and animal form is shown in Plate XLIII (figs. *a* and *b*). The legs differ in no way from the simple tripod support, except that they are four in number. This is more a concession to the maintenance of the zoömorphic idea than to any thought of achieving a satisfactory state of equilibrium. To the primitive workman, the three-point support has much in its favor, no delicate adjustment of leg length being necessary. All three feet touch the supporting surface immediately and firmly, whether it be plane or undulating. On the other hand, when four legs are employed, one is almost always worse than useless because too short to take its portion of the weight, which but for the presence of the worthless member might have been easily distributed among the other three. This probably accounts for the prevalence of the tripod.

The globular body of the vase becomes the trunk of a jaguar by the addition of the head and tail of that animal. They are both hollow, thus adding much to the capacity of the vessel as a whole. The external contour lines are exceedingly graphic. The surface of the interior is everywhere smoothed down with care, especial attention being given to contact lines at the base of neck and of tail. The features of the head are in relief, which is strengthened by the judicious use of paint. The thick lips are parted, both rows of teeth being visible. The four overlapping canines seem to reach from the upper to the lower jaw as in other representations of the dentition of the jaguar (Pl. XLI, fig. *c*; also text-fig. 244). The fields of black spots about the eyes and on the throat evidently have reference to the markings of the jaguar's skin. This is not true however of the remarkable series of patterns that cover the top of the head, the neck, sides, and tail to its tip, except the under surface, which like the belly is unmarked by delineating colors.

There are 89 panels, no two being alike in size and shape. They approximate squares, rectangles, trapezoids, trapezia and triangles. The outlines of the pattern follow those of the containing panel. The markings of the inner field include lines that meet or cross each other, sometimes forming simple or compressed meanders. These lines and meanders are always accompanied by dots on one or both sides. In a few small panels, dots only are to be found. There are no circles or dotted circles. In other words, these panel patterns have no reference to the markings on the jaguar's skin. They are repetitions, with variations, of the well-known alligator motive. The panels themselves may be a concession to the ocellated patches on the jaguar's coat, but there the comparison ends.

In an outline drawing, Holmes[1] figures a vase of the alligator group, with shoulder zone divided into panels that enclose somewhat similar patterns, except that dots are used sparingly and in a few instances the characteristic plumelike spine symbol is recognized. These devices originated in the alligator motive. Holmes did not refer them to the alligator, although he believed them to have "features suggesting a pictorial original and doubtless derived from one." The same writer raises the question whether these ancient peoples might not have been "supplied, through the conventionalizing agencies of the art, with devices that could have been employed as ideograms and letters."

A dorsal view (fig. *b*) of this interesting piece impressses one not only with the variety of the patterns, but also with the skill displayed in the arrangement of the panels. Luckily for the artistic effect of the whole, bilateral symmetry was not thought of or else was studiously avoided.

The bowl of the vessel is completely lost in the body of the animal, when we come to such examples as the one reproduced in figure *c*, where only the neck and rim emerge above the animal's back. The tapir is chosen for representation, probably *Tapirus bairdii*, since this species is known to exist in Panama. The specimen is carefully finished. The short tail and legs, as well as the long proboscis, are characteristic. The mouth is open enough to reveal two rows of short teeth, all of the same pattern. Perforations for the external auditory openings communicate with the hollow interior of the head. The neck is solid. The use of the delineating colors is out of the ordinary, black instead of red being the more freely employed, especially for the broader bands and areas. The painted designs have nothing to do with the skin markings of the tapir. The origin of the motives is traceable to the alligator, although the choice of them in this instance may have been without any special significance other than decorative. There is no decoration on the ventral surface, from the chin to the end of the tail.

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[1] Op. cit., fig. 284 (see also fig. 285).

The insignificant tail and projecting buttocks of the tapir are well characterized in figure 245. The end of the proboscis has been broken off. The hollow head and neck add considerably to the capacity of the vessel, the rim of which rises from the back of the animal figure. The free use of black, as in the preceding example, is to be noted in the decoration. Longitudinal panels reaching from the head to the tail enclose the alligator motives. Attached to this specimen was a note in the handwriting of the collector as follows: —

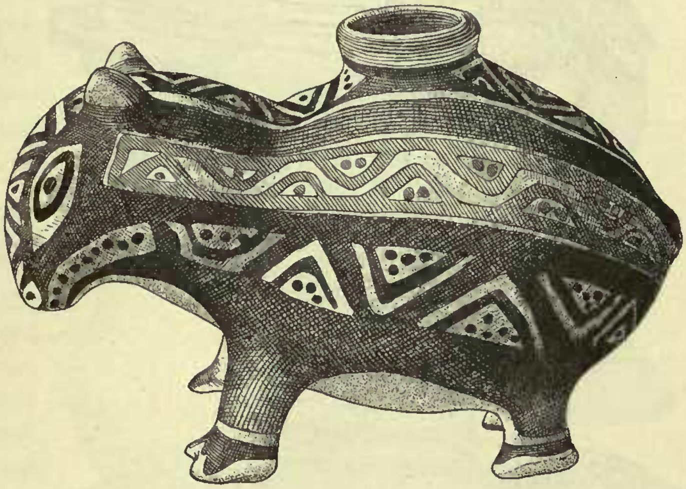

Fig. 245.—Zoömorphic vessel representing the tapir and ornamented with alligator motives. Alligator ware. 1/2

> Jan. 1878. '*Vivala.*' This huacal (waucal) seems to be continuous for miles along river of same name. Graves vary from 3 to 12 feet deep, a very few having gold. Many contain nothing desirable; others, 1 to 15 or 16 pieces, mainly pottery. J. A. McNiel.

The Yale collection includes a number of rare bird forms that present some very interesting characters. As far as I have been able to ascertain, complete examples of this kind are not to be found in any other collection. The largest of these (fig. 246) is from Divala. It is first of all a vessel, the globular form of the body not being even masked by the addition of ornithomorphic characters. Instead of two legs, there is a low annular support approximating in size that of the circular rim at the mouth opening, the latter being gently flaring and painted red.

The bird's head, which unfortunately is broken off, was placed rather low on the shoulder at a short distance above the plane of greatest horizontal diameter of the vase. Its shape and size can not be determined beyond the certainty that it could not well have been relatively large without a greater distention of the surface contour of the body at its base. The wings and tail are in nearly the same horizontal plane as was the head, the wing attachment reaching from near the head almost to the root of the tail. The length of the short tail is the same as the spread of the wings.

The base of the missing head is surrounded by two black circles that are cut at the top by the lower of two horizontal black circles. Below these are black and red zonal bands, interrupted only by the head space. The tail and wing feathers are indicated by black parallel bands that are partially lost, owing to the crumbling away of the underlying slip. The breast is decorated with an original design in black that evinces brush-work skill of a rather high order. The walls of the vase are thick and the relatively fine-grained, rich red paste is tenacious. An attempt to mend the break that caused the loss of the bird's head was made by using a black substance that may possibly be the same material as the body of the black paint employed in one of the delineating colors. On analysis, the substance proves to be pine pitch, which might well be one, at least, of the ingredients in the black paint because of its adhesive qualities as well as of its color. Other possible blacks are oxide of manganese, charcoal and soot. According to Mr. C. V. Hartman,[1] the native women of Izalco, Salvador, decorate their calabash vessels with a paint, the black color of which is derived from powdered charcoal.

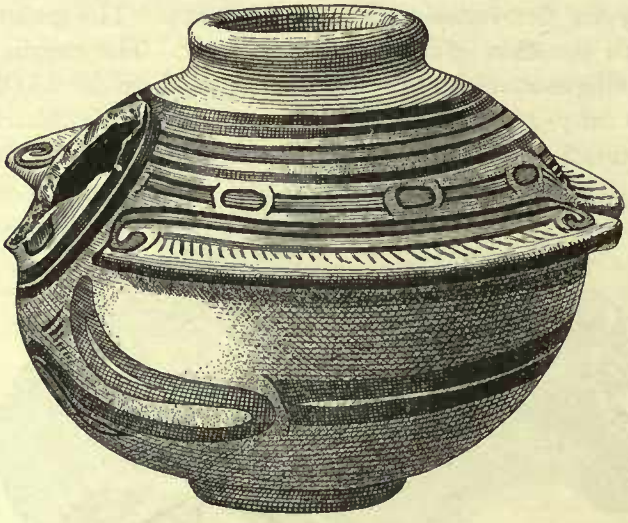

Fig. 246.

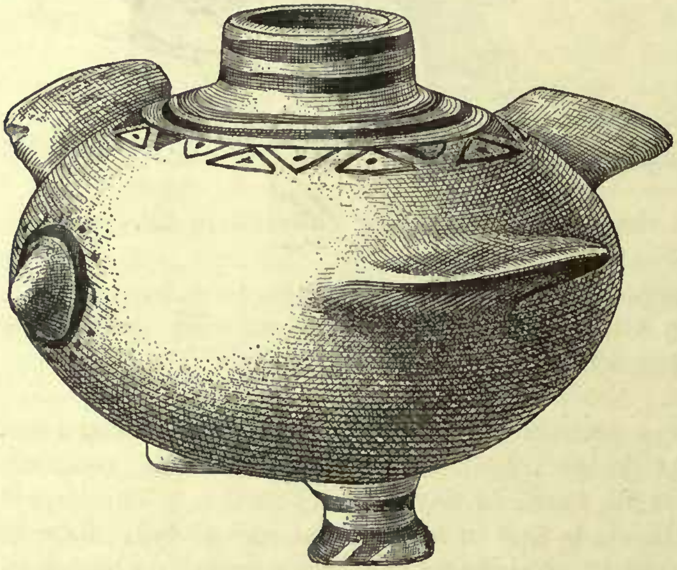

Fig. 247.

Fig. 246.—Globular vessel representing a bird, a low annular support taking the place of feet; from Divala. Alligator ware. 1/3

Fig. 247.—Ornithomorphic vessel decorated with scale-group and spine motives. Alligator ware. 1/2

The bird form is somewhat more pronounced in figure 247, although the addition of avian characters, such as two feet, wings and horizontal spreading tail, does not alter the globular form of the vessel. The legs are quite short and so placed as to combine with the relatively large flat-bottomed feet in giving to the figure a certain degree of equilibrium. The feet are spread equally at the heel and toe, the number of the toes not being indicated. This is the typical bipedal form of foot and is found also in human figurines. The spread of the tail is about equal to that of the wings. Both are more highly differentiated than in the preceding vase, and are directed upward as if in flight. The wings are only partially extended as if the bird were in the act of alighting, and the backward pointing tips are truncate. The head, fortunately preserved in this case, is a mere lump of clay situated on the periphery and proportionately smaller than the head in the foregoing example.

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[1] Die Baumkalebasse im tropischen Amerika. Boas anniversary volume, 203, 1906.

The neck of the vessel is much more constricted than in the former example. Its walls are vertical and cut square at the top. The rim is painted red and there are two black horizontal bands about the neck. Had it been left undecorated and had there been no other provision for a head, one might be led to suppose that the latter was a separate piece made to fit over the neck. But such was not the case. The whole is complete as it stands. On the shoulder is a narrow zone decorated with scale-group (alligator) motives. A black paint was smeared on the upper surface of wings and tail. The head protuberance is painted red and surrounded by a black band, outside of which is an irregular circle of scale- and spine-symbols. The short legs are marked on the outside by two horizontal black bands. The rest of the outer surface is finished in a cream-colored slip. This form is of special significance as being a connecting link between the foregoing bird form (with annular base, indifferent wings and tail, and rather wide aperture with flaring lip) and those that are to follow.

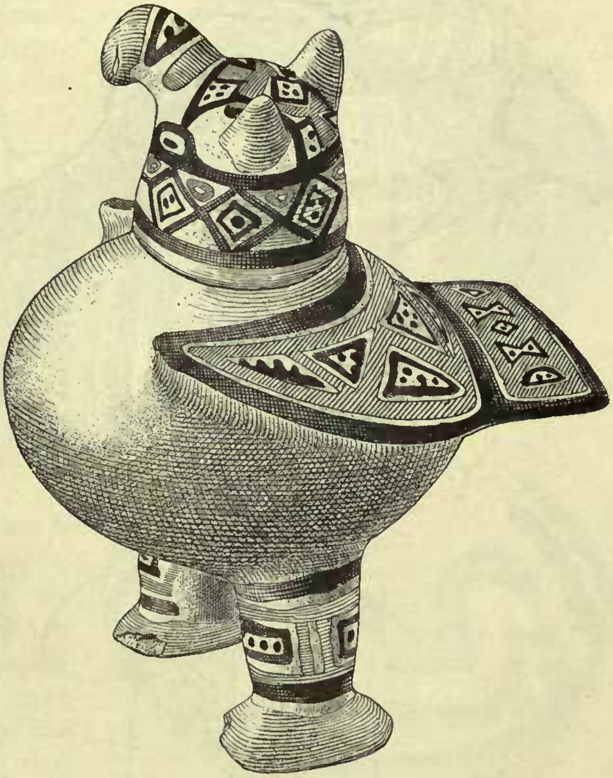

Fig. 248.—Bird form with realistic removable head. Alligator ware. $^1/_2$

The next step leads to the disappearance of the painted lump on the breast that served as a head and the appearance of a more or less realistic, removable head that fits over the aperture and undecorated neck at the summit of the vesicular body (fig. 248). The latter is spheroidal as in the last figure, but the wings and tail are treated in a different manner. The wings are fused into the tail and are only slightly in relief, being indicated in a large measure by means of paint. The chief delineating color here, as also on head and legs, is black; the red is used for masses (on feet, ear-tufts and beak) and for filling in. The scale-group motive is freely employed on head and neck, wings and tail.

The ear-tufts suggest the owl, but the beak and the short square tail are more like those of the parrot. When compared with the head ornaments of gold and stone images of the parrot, these ear-tufts are straightway clothed with new significance the explanation of which is suggested on page 221. Among the whistles in the shape of birds, a majority represent the parrot, rarely however with ear-tufts. It is probable that the bird forms with removable heads also represent the parrot. The separation of the lower mandible from the upper is generally indicated by a slit. The eyes are in rather low relief, outlined in black paint. The neck near its base is perforated transversely (see fig. 249 *b*). There are also two corresponding holes in the top of the

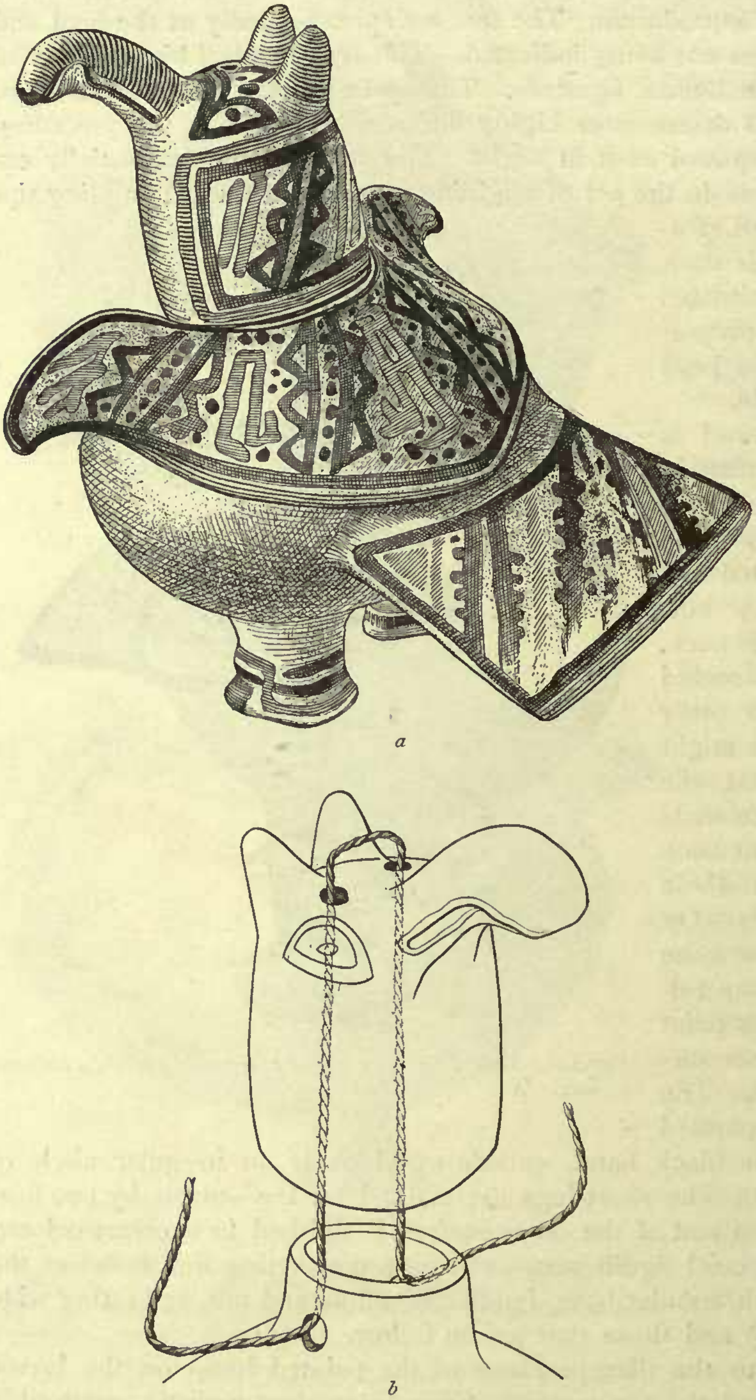

Fig. 249; *a.*—Elaborate bird form with removable head and ornamented with dorsal-view motives. Alligator ware. $^1/_2$; *b.*—Diagram showing mode of stringing neck and body for suspension.

hollow head in front of the ear-tufts and somewhat nearer the median plane, making it possible to tie the head fast to the neck and if need be to suspend the completed bird form. The highly polished cream-colored slip on the throat, neck and body is nowhere marked by delineating colors.

A similar, and in some respects superior, type is reproduced in figure 249 *a*. The beautifully turned body is somewhat longer than broad and thus just fails of being a spheroid. The tail, beak and the ear-tufts are longer; and the wings are in higher relief, their tips uniting in a median plane over the base of the tail; the carpal angles stand out prominently. The long sharply curved beak has been broken at the end. The eyes as in the foregoing are in rather low relief and outlined in black paint. There is a similar set of holes at the base of the neck and in the top of the head. Three short toes are indicated on each foot. The flat sole is pierced by a hole that extends vertically upward for a distance of 15 millimeters into the short solid leg. On the contrary, the rather long legs of the preceding figure were hollow and slit vertically on the inside.

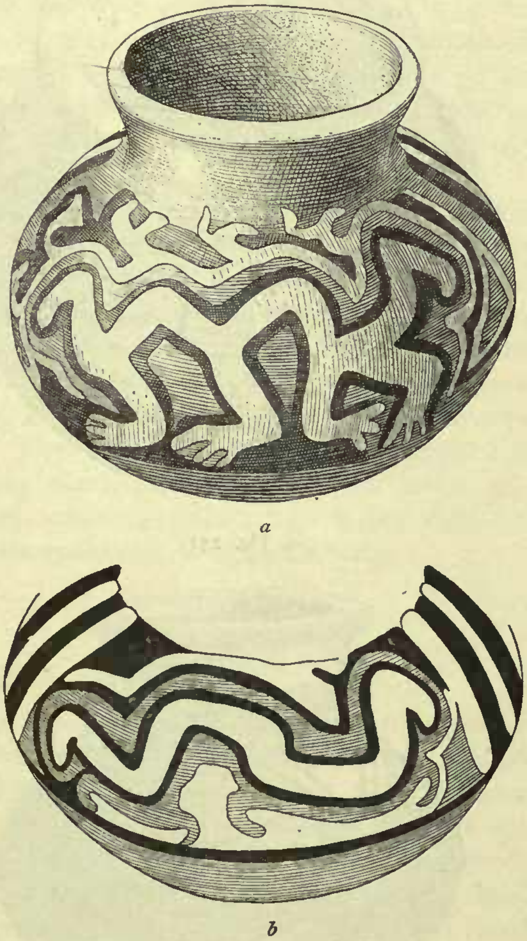

Fig. 250; *a*.—Vase showing elaborate and highly conventionalized use of alligator motive; from Divala. Alligator ware. $^1/_2$; *b*.—Panel design on the opposite side.

The paste in all these bird forms is alike — a deep red, in which the white grains of the tempering material are more or less conspicuous. The slip is a light cream. The latter, in the specimen under consideration, is not quite adhesive enough to hold firmly the delineating colors, the result being that the decoration on the head, wings, feet and upper surface of the tail is marred by the scaling off of the paint. Here again black is the chief delineating color, the characteristic alligator motive being executed in it alone; while the red was used for masses and filling in. The design in black on the wings is the dorsal-view alligator motive similar to that on the shoulder of the vase reproduced in figure 230. Practically the same motive is found on the head and upper surface of the tail.

The use of these bird forms with removable heads is problematical. The broad flat feet give comparative stability. On the other hand, they may have been suspended by means of a cord that passed through the four holes in the neck and head. In the specimen belonging to the Yale collection, these holes do not show any distinct trace of wear. By passing a cord in through one of the neck holes, up and out through the hole in the head on the same side, down through the other head hole and out through the remaining neck hole (fig. 249 *b*), the free ends can be tied together, thus making the head fast to the body; and if long enough they can be tied to a bracket, the head and trunk being held securely together by the weight of the latter.

Of these bird forms, the first two described were collected by McNiel and the last two by de Zeltner. With the latter's collection there came also a third head but no corresponding body. As has been said, the paste in all is a deep red similar to that of the polychrome group to be described later. The character of brush-work in the largest (see fig. 246) is not unlike that in the polychrome group.

The discussion of the alligator ware ends with a description of three vases having characters that deviate somewhat from the general type in point of form and material, as well as in the general character of the painted designs. But they are, nevertheless, more nearly related to the typical alligator ware than to any other.

In figure 250 *a*, reproducing a vase from Divala, the paste is coarse and the modeling crude. There is a rather sharp angle between neck and shoulder, instead of the blending of the contour lines so characteristic of the alligator group. The usual pale yellow slip does not seem to have been employed. On the other hand, the ground color is everywhere red. The delineating colors are white and black, the white being applied as a thick layer. It has scaled off in places, leaving the paste of the walls bare. The black seems to have been used for outlining and for filling

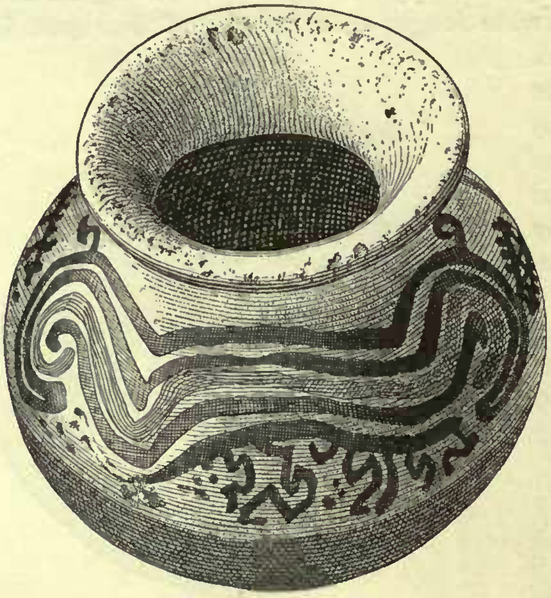

Fig. 251.

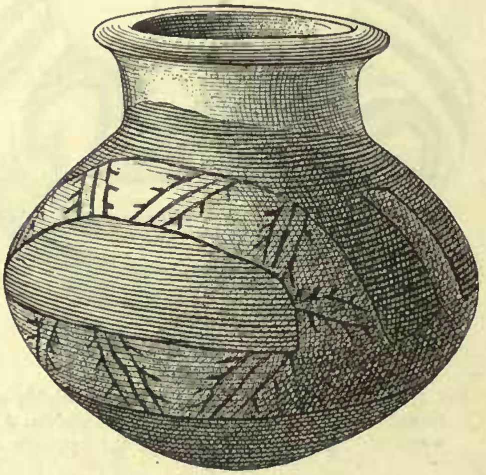

Fig. 252.

Fig. 251.—Vase with problematical decoration. Alligator ware. 1/2

Fig. 252.—Vase combining features of alligator and lost color groups, the dorsal-view motive occurring on the peripheral band and those tangent to the neck. Alligator ware. 1/2

in small interspaces. The red was employed for a like purpose in addition to its use as a ground color, pure and simple. The order of application was evidently white, black and red.

The shoulder zone is divided into two panels by means of alternating, vertical black and white bands. The design in each panel is reptilian and presumably represents one and the same animal, although to one is given four legs, each terminating in three toes, while the other is legless (fig. 250 b). The body is serpentine in both, and the head more or less sharply defined.

The second of these vases (fig. 251) is in every respect more characteristic of the alligator ware. The design is executed in black and red on a pale yellow slip. Its meaning is problematical. The lines of the drawing are somewhat similar to those on the preceding vase. The neck and lower half of the body are finished in red.

The last vase (fig. 252) combines certain features of the alligator- and lost color-groups, respectively. It may be recalled that in the lost color ware an oft-repeated scheme of decoration was the division of the body into two zones by a horizontal peripheral band and a subdivision of the upper zone into panels by means of bands tangent to the neck on either side. The same scheme is followed here, but the colors and their method of application are those of the alligator ware. The bands are pale yellow (slip) slightly tinged with red, while the lower zone and the panels of the upper are red. The bands are everywhere outlined in black and are crossed by parallel slanting black lines in groups of three, representing the body of the alligator, with spines projecting on either side — in other words, the dorsal-view motive. This specimen is from Corredor.

THE POLYCHROME GROUP.

To the Yale collection belong six specimens of the polychrome group, called by Holmes "the most artistic of the wares of Chiriqui." This ware is remarkable for its rarity as well as its refinement and beauty of ornamentation. The National Museum possesses only three examples and from one of these the purple color, the distinguishing character of the group, has been left out. In the Peabody Museum of Harvard University, there is a single specimen of what might be called polychrome ware, but here also the purple color is lacking. On the other hand, purple is one of the delineating colors in all six of the Yale specimens.

While perfectly distinct as a group, the polychrome ware is more closely akin to the alligator ware than to any other. It may be recalled that in the alligator group the delineating colors were black and red, black being used for contours and red more especially for filling in. This is also true of the polychrome ware. The slip in both is practically the same, except that it has a more distinctly salmon tint in some polychrome pieces. In the latter, the paste is a dark red, similar to that in the bird forms of the alligator group already noted (pp. 145–49) and also to that in a class of whistles and figurines to be described later, though belonging to the alligator ware. Certain decorative motives are also common to both. In point of form however there is a distinct divergence from the tripods and round-bottomed vases, especially the latter, so common in the alligator group. With two exceptions, these are entirely wanting, and in their stead appear highly differentiated forms with annular bases that are sometimes developed into tall hollow stands.

The series begins with a pitcher-shaped vase from Gualaca (Pl. XLIV, fig. *a*). The body, which is flattened uniformly above and below, is supported by a low annular base and surmounted by a neck that is gently flaring and not provided with a spout. The pronounced and horizontally flattened lip is damaged by weathering and chipping. The handle, which was attached to it and to the shoulder below, is entirely gone. The ascending ramus of the handle was pegged to the shoulder, as indicated by an empty hole. To be in harmony with the main outlines of the vessel, the horizontal ramus of the handle must have met the ascending branch at an angle of less than 90°. This is true of the handle of a pitcher (cat. no. $\frac{c}{3678}$) in the Peabody Museum of Harvard University, that belongs evidently to the polycrome group, although no purple was used in the decoration of the vessel. Neither is the form of the latter so pleasing.

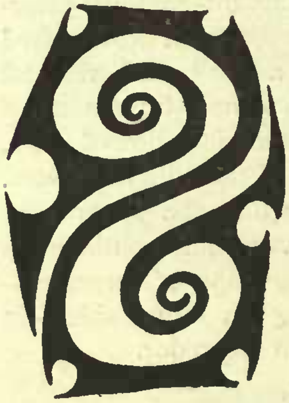
Fig. 253.—Sigmoid scroll in which the alligator motive appears as simply cut out of the black band where it is broadest (see Plate XLIV, fig. *a*). 1/2

The Yale specimen is somewhat damaged from weathering. The paste is much lighter in color than that of the other specimens, a fact due partly to bleaching. The entire surface was coated with a pale yellow slip, over which the designs were executed in black, red and purple. A broad red band encircles the annular base and the neck constriction. These are joined by four broad longitudinal bands, alternating in purple and red, one being in line with the handle. A narrow purple band surrounds the base of the handle. In the four panels thus formed and on the neck, black alone is employed. Three bands, two black and one red, decorate the lip. The orifice is unpainted.

The attention is at once fixed upon the ornate scrolls of the panels (fig. 253), all of which are approximately the same, except that of the two facing the handle; one is of necessity left-handed and both are slightly modified to make room for the base of the handle. The ingenuity displayed in adapting the motive to the space at hand, the training of the eye and the delicacy of touch are all marvelous. The scroll ornament is carried horizontally about the neck, one and one-half units of the motive being required to fill the space to be decorated (fig. 254). The oval notches cut from the body of the scroll at intervals where the black band would be broadest evidently mean something more than a mere effort to relieve the pattern of broad black areas. They are highly conventionalized alligator motives of the profile variety, with the dermal markings not represented. In the last illustration (fig. 254), two of the motives are not completely fused with the mass of the scroll; the body-line is visibile for a short distance near its center. The specimen in the Harvard University collection is decorated with a similar branching scroll that completely encircles the body of the vessel. Beginning at a point beneath the handle, it is developed in both directions until the two arms unequal in length meet and fuse. The alligator motives represented by oval notches are distributed precisely as in the Yale example.

A round-bottomed vase is reproduced in figure 255. The nearly spherical lower half is given a uniform coat of red. The orifice is also painted red. The overhanging lip and short neck are banded with red and black. The decoration on the flattened upper zone consists of an animal head and tail in relief and painted panels on either side. The panel motive is precisely the same as that on the neck of the pitcher from Gualaca (see fig. 254), except that the details are more elaborate and the execution is of a higher order, three colors also being used instead of one. Here again it takes one and one-half units of the motive to fill the long panel. The terminal half-units are bilaterally symmetrical, the end of the scroll in each case being purple outlined in black. The somewhat abbreviated central half-unit terminates in a red coil instead of a purple. This half taken with the one on the right completes a sigmoid scroll. In other words, the growth of the scroll complex is from right to left, as it was of that on the neck of the pitcher. In this instance, the oval notches of figure 254 become so much more highly differentiated as scarcely to be recognizable. Fortunately the two upper median ones serve as a connecting link between the simpler form as seen on the pitcher and the partially detached form employed at the lower corners, for example. Each one represents the body-line of the alligator, and the accompanying dotted ovals stand for the dermal markings. The panel decoration on the opposite side is almost completely weathered away. Judging from what remains, it was the exact counterpart of the one illustrated. In con-

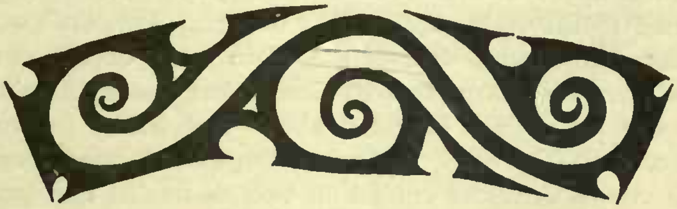

Fig. 254.

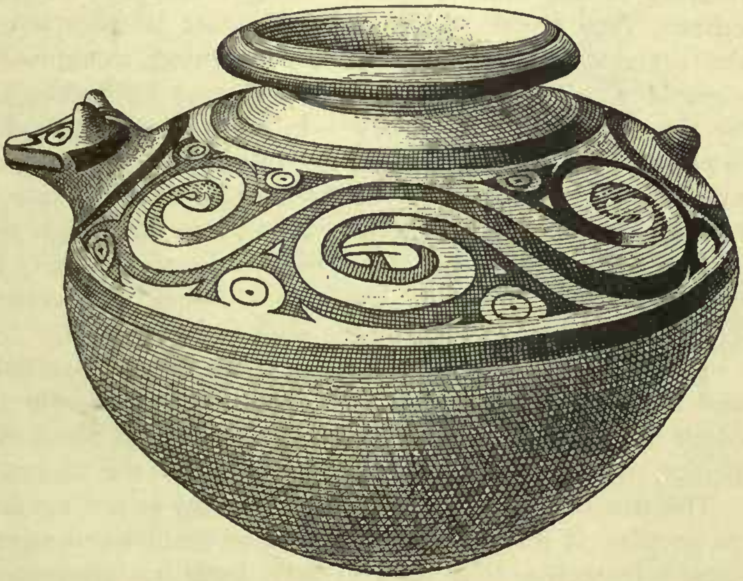

Fig. 255.

Fig. 254.—Branching scroll in which two of the alligator motives (notches) are partially differentiated (see Plate XLIV, fig. *a*). ¹/₂

Fig. 255.—Vase with elaborate branching scroll from which the alligator motives are partially detached and accompanied by dots and circles representing body-markings. Polychrome ware. ¹/₃

ception, execution, balance and symbolism, this scroll is indeed a masterpiece, one that baffles the skill of a modern artist to copy faithfully.

The next vase (Pl. XLIV, fig. *b*) in the series is in perfect condition. The form though eccentric is graceful. The usual annular base is present. The lower half of the oval body is finished in what might be called a red (light maroon) slip. The same finish is given to the orifice and neck. Below and encircling the latter is a broad band of a brighter red; the same that is used as a delineating color. On the upper zone and at each end of the oval body is a bovine head in relief, turned to the right at an angle of 90°. The hollow interiors of the two heads communicate with that of the main body of the vase. Alternating with these heads are two long panels painted over a salmon-colored slip. The black frames for the panels are bounded above and below by continuous black bands and beneath the lower of these is a bright red band bordering on a dark red slip. The colors therefore consist of two shades of red, pale salmon, black and purple.

The panel design is the same as in the two preceding — a highly ornamental running scroll, four half-units being employed on one side and six on the other. The growth of the scroll however is from left to right in both panels; the reverse of that noted in the foregoing examples. Beginning also with a sigmoid scroll, it grows in a natural way by budding or branching instead of by a series of interlocked S's — in other words, it might be called the *direct* or *branching scroll* as opposed to the *interlocked* or *reverse* type, otherwise known as the Vitruvian scroll. The volutes are tipped with purple and red alternately. The characteristic alligator motive is woven into the design as was noted in the preceding examples. The decorative motive on the body of the previously mentioned pitcher belonging to the Peabody Museum of Harvard University is also the branching scroll, similar to that seen in figure 254.

The features of the two heads in relief are emphasized by the skilful use of red and black colors over a salmon slip. Of special interest is the treatment of the black bands over the eyes, giving to the slip the effect of a delineating color. Attention should also be called to the shading of the muzzle by means of black lines.

The use of the scroll or spiral ornament is not confined to any particular land or people. It has developed in various centers and at various times and has been spread over the face of the earth both by borrowing contemporaries and by descendants. Many attempts have been made to trace its origin. In Egypt, it is supposed to have come from the curling sepals of the lotus[1] and to have been carried with the Egyptian civilization into Europe. In our own country it reached a high degree of development in the lower Mississippi valley and in the pueblo region of the Southwest. Holmes[2] would trace the origin of the scroll to the coiled fillet of clay with which the potter began his vessel; to the basket-maker's platted or twisted splints of wood; to the spire of a conch-shell, or to the linear representation of waves of water.

Of the two types of scrollwork (each with its variants), the classic Vitruvian or reverse scroll and the direct or branching scroll, the latter would seem to be the more primitive and appears to have been the favorite among the ancient Chiriquian potters. The single S was used, to be sure, but not a series of interlocked S's to form a current scroll of the reverse type.

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[1] Op. cit.

[2] W. H. Holmes, Origin and development of form and ornament in ceramic art. Fourth ann. rept., Bur. ethnol., 456, 1882–'83.

The branching scroll is apparently of much less frequent occurrence than the reverse scroll. With the exception of Chiriqui, it is rarely seen in the art of the Western hemisphere. Riegl[1] figures examples of it from Rhodes, Greece, Pompeii and Syria. These are practically all outspoken representations from the plant world. On the other hand, the Chiriquian branching scroll bears no resemblance to any plant except in the manner of its growth, as suggested by its name. The motive bears the stamp of originality in all its details and may justly be called Chiriquian.

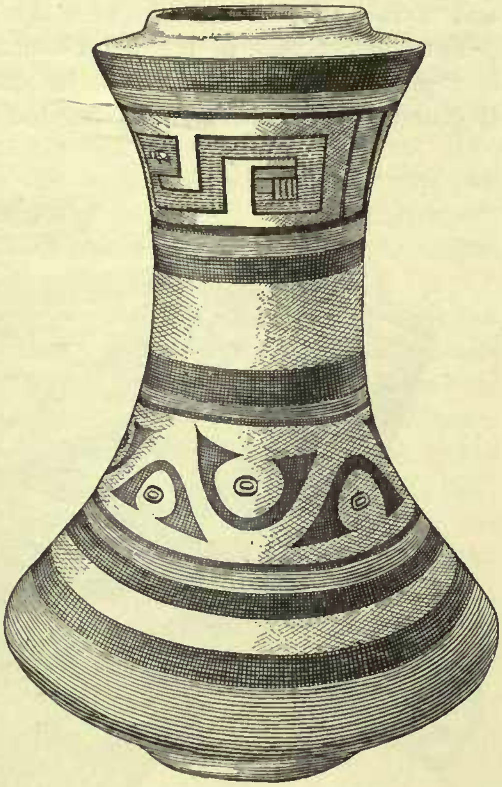
Fig. 256.—Unique type of vase, the zonal decorations being alligator motives. Polychrome ware. ¹/₃

A rare form of vase is illustrated in figure 256. It was one of the few selected by de Zeltner[2] for illustration; his photograph, however, is not only very small but is also lacking in detail. Using de Zeltner's diminutive photograph as a guide, Holmes[3] attempted to reproduce it by means of a drawing, which is unavoidably inexact. At that time Holmes had not seen the original. In shape, it is like an elongated bell resting on a shallow bowl. As usual, the support is annular and the lip projects but slightly above the flat angular shoulder. The decorated zones are bounded by horizontal bands applied in groups of three, consisting of a red band between two black ones of unequal breadth. The upper zone is divided into four panels by means of two pairs of triple vertical bands. The two larger panels are ornamented with a sort of fretwork, the design being approximately the same in each. The outlines are in narrow bands of black. The filling is done in purple, except at the ends, where it is red. The derivation of this motive is presumably the same as that of the sigmoid scroll, i. e., from the united body-lines of two alligators.

The chief interest attaches to the motive already familiar by reason of its association with the foregoing examples of branching scrollwork (see text-figs. 253–255 and Pl. XLIV). Here it is repeated eight times in order to fill the lower zone, and is completely detached from the branching scoll, which is left to be supplied by the imagination. The design represents the body-line of the alligator (see Pl. XL, fig. *f*; and text-fig. 224), and the concentric rings placed in the center of the dorsal concavity are the body-markings. The multiple motive is thus broken up into its constituent units, each representing a whole alligator. An excellent example of this motive is figured by Holmes.[1] The Yale Museum is particularly fortunate in having examples of it in various stages of its development and showing its connection with the branching scroll.

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[1] Alois Riegl, Stilfragen, figs. 76, 96, 128, 130 and 158, Berlin, 1893.

[2] Op. cit.

[3] Op. cit., fig. 213.

The largest vase of the polychrome group and indeed of the entire collection is reproduced in figure 257. In shape it is unique and in modeling, perfect. Beginning with the simple rounded bottom, the walls are carried upward and rapidly outward till the greatest diameter is reached at the high and sharply angular shoulder. There is a further flattening at the collar approximating a horizontal plane. From this rises a short neck with angular lip. Rather far out upon the shoulder and on opposite sides are two raised highly conventional animal forms, which also resemble functionless handles. Similar forms occur on one of the polychrome vases belonging to the United States National Museum.

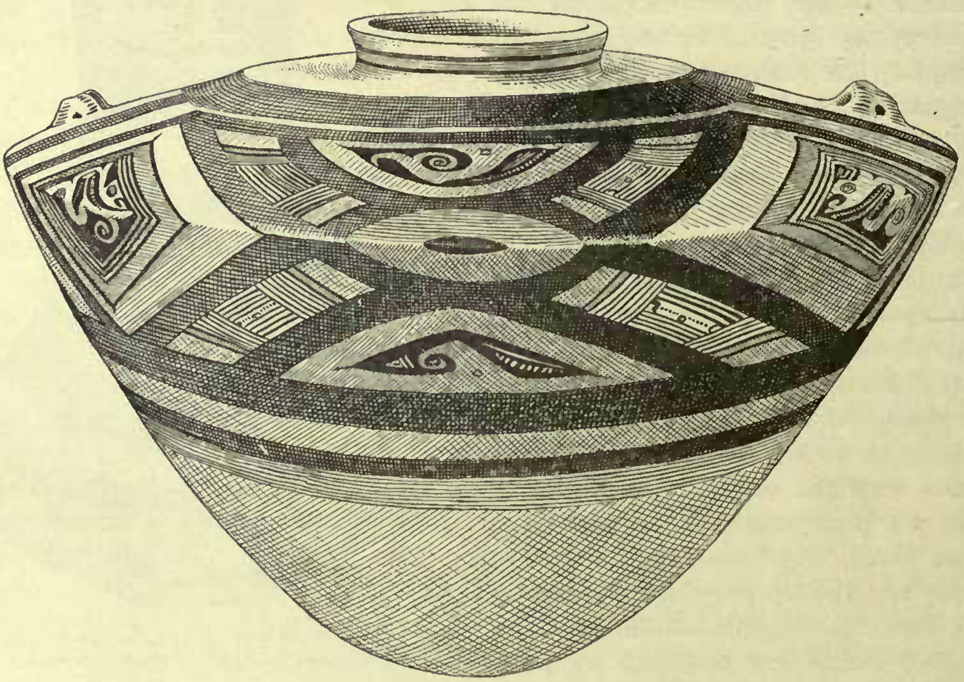

Fig. 257.—The largest vase in the collection, unique in form and decorated with alligator motives. Polychrome ware. ¹/₃

The red slip of the lower zone and of the aperture differs in tone from the delineating red, and is approximately of the same shade as the paste. The ground color of the upper zone, including collar and neck, is the usual cream slip, on which excepting the collar, appear the delineating colors, black, red and purple. The highly skilful and artistic panel ornaments are broken in the middle by the sharp angle at the shoulder. The four panels are grouped so that two opposing ones form a pair, the smaller pair being in line with the relief forms. The designs in the large panels are similar, but not identical. The same is true of those in the small panels. These designs all seem to rest on the broad black band that forms the bottom of the common panel frame, but do not quite reach the black band at the top of the frame.

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[1] Op. cit., fig. 211, 212.

The purple is used very sparingly, being found only in the two small panels. Here, the principal element of the design resembles the false door (*Scheinthür*) of an Egyptian tomb. The narrow longitudinal central framework is filled in with purple, one margin of which is thrown into a series of wave-like curves. The crosspiece at the top is also purple. Above this comes the life form in relief and above the latter, a much flattened oval ring of purple outlined in black. The details of the panel opposite are practically the same, except that red is employed, instead of purple, in the central framework.

The designs of the two large panels are each built up around a central red oval. About this are grouped the four arms of an X-shaped design, each containing a small panel, decorated with the false door pattern resembling somewhat that already described. In the upper and lower angles of the X is an elaborate rendering of the alligator motive in black — the body-line of the animal and a small concentric ring placed over the dorsal concavity (compare with fig. 256). Within the lateral angles are quadrangular fields, each enclosing a more or less realistic representation of the alligator. These are reproduced in figure 258.

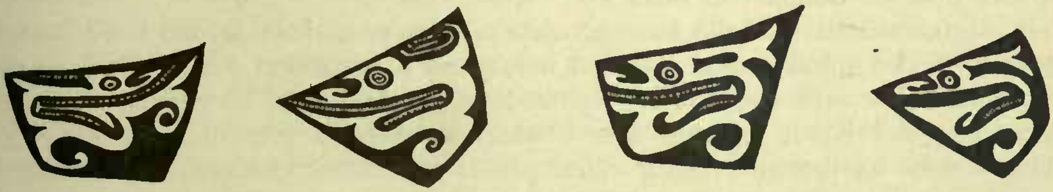

Fig. 258.—Conventionalized alligator designs illustrating the process of sparing the pattern out of the field (see fig. 257). ¹/₁

The technique here is different from that which obtains elsewhere throughout this group. The design is produced not by delineating colors, but by filling in the field around the figure in black, leaving the figure in the color of the slip. The skill and ingenuity with which this work is executed are simply amazing. They make the ancient Chiriquian a worthy rival of those who boast the traditions of Greece and of the renaissance of Italy. He proved himself master of the brush in three distinct systems: (1) The production of the figures by direct application of delineating colors; (2) the lost color process, and (3) by sparing the figure out of the ground (*ausgespartes Ornament*).

The series ends with the gem of the polychrome group and the finest work of ancient Chiriquian decorative art known to the author. In originality of design, richness of detail and skill in execution, it stands alone (Pl. XLV and frontispiece). Holmes[1] attempted to reproduce this piece also, from de Zeltner's miniature photograph, but his two figures are of necessity full of slight inaccuracies. Like the rest of the polychrome series, except the first specimen,[1] this came to Yale with the de Zeltner collection.

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[1] Op. cit., figs. 214, 215.

The shallow bowl, which has a diameter of over twenty-seven centimeters, is mounted on a hollow perforated stand that gives to the whole a height of about nineteen centimeters. The thickness of the walls varies. The rim of the bowl is ten millimeters thick, but this thickness is soon reduced by half as the center is approached. The same is true of the stand, the walls of which are thickest at the base and grow thinner rapidly toward the top. Of the four longitudinal slits like elongated triangles that pierce the walls of the stand, the alternating ones point in opposite directions. These openings were cut before the surface was polished or painted. The stand is in excellent condition, but the bowl had been not only severed from its support but also broken into several pieces. These had been put together in an indifferent manner while still in de Zeltner's hands, and the beauty of the designs had been much marred by repainting. By means of alcohol, which luckily does not affect any of the original colors (cream, black, red and purple), I have removed all such painted restorations.

This is the only vessel in the Yale or any similar collection, where every visible part has been carefully decorated, the interior of the hollow stand only excepted. The ground is a cream-colored slip. Black is the color chosen for all the outlines and for the minuter details. It is everywhere applied with a very fine-pointed brush or instrument, the lines, whether straight or curved, being drawn with precision. Red and purple are used alternately as mass colors, always on spaces that are outlined in black.

The ornamentation of the base consists of a lower horinzontal red band continuous with two spirally ascending red band, and a horizontal purple band at the top continuous with two spirally descending purple bands alternating with the ascending red bands. These four bands pass directly over the four openings. The designs on the intervening spiral panels resemble the herring-bone pattern, two pointing upward and two alternating with these, pointing downward. Thus, the balance in the use of color as in the design is everywhere maintained.

The exterior of the bowl (fig. *b*) is decorated as follows : A short distance above the top of the stand, there is a red band and above this a broad zone limited above and below by black bands. Within this zone are what appear at first sight to be four panels or compartments, each enclosing an alligator's head. This, in fact, is the interpretation de Zeltner[2] put upon them when he said : — "La partie inférieure de la coupe est divisée en quatre compartiments, dont chacun renferme un dragon paint en noir et rouge sur fond blanc ; les encadrements sont tantôt rouges, tantôt violets." A more minute observation proves that they are not panels (four) at all. The entire design resolves itself into two units of the classic fret. The ends of each fret are linked with alligator heads, which face each other, one being of necessity inverted. Holmes has already pointed out the derivation of the fret from the body-line of the alligator. In the present instance, we have a realistic verification, showing that a unit of the fret involves the body-lines of two alligators. The upturned snout and the spines on the back of the head are easily recognizable. The bands composing the fret are delicately outlined in black and also divided into long slender compartments, that are filled in with red and purple alternately. The fret with accompanying heads on the opposite side is similar to the one figured. This is one of the most elaborate examples of the association of a life form with the fret or scroll.

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[1] This pitcher with broken handle formed a part of the McNiel collection.

[2] Op. cit., 9, 10,

The conventionalized treatment of the alligator by the ancient Chiriquian artists suggests a comparison with that of the crocodile (*cipactli*) and of the blue feather snake (*xiuhcouatl*) of the ancient Mexicans. The conventional head of a bird worn on the forehead of so many Mexican deities (*Cinteotl*, *Xochipilli*, *Tonacatecutli*, *Quetzalcouatl*, *Tonatiuh*) also reminds one of the alligator head with its recurved jaws. In this connection, it is interesting to note that life forms with a head at either end of a common body are incised on some of the metates from Las Guacas, province of Nicoya, Costa Rica, recently described by Hartman.[1] In one case, the common body is a guilloche pattern and in the other it has the appearance of being tied in a knot, bringing the two heads closer together. The latter do not seem to have been noticed by the author. They look very much like the Chiriquian alligator head. In Peruvian art, also, there is a reptilian motive akin to the so-called alligator motive of Chiriqui, even to the spine- and scale-symbols, the nuchal crest and hooked snout.

The most extraordinary design is the one inside the cup or chalice (Pl. I)[2] — a human body and extremities surmounted by the alligator's head with all its characteristic traits (the suspended lower jaw, recurved snout and a frontal as well as a nuchal crest). This is the same mythical creature, excellent examples of which are to be recognized among the gold figurines (see Pl. XLVIII, fig. *g*; and text-figs. 365-368), to which I have given the name alligator-god. The artistically executed spines with alternating red and purple are attached to the crests instead of to the head proper. Within the field back of the eye and leading down to the shoulders are three alligator motives — the curve of the body accompanied by the symbol for the body-markings placed in the dorsal concavity. In the upper and the lower motive there is a dorsal angle instead of a dorsal curve. The central figure, however, is very similar to the motive as it appears in preceding illustrations of polychrome ware (see fig. 256). The same design is employed to fill angular spaces on opposite sides of the field. Something resembling a tail branches off from the body on either side in the region of the hips. Accompanying each of the four extremities there is a design composed of series of parallel lines meeting at an angle. Not an inch of space is left undecorated; spines and teeth are to be seen everywhere. Both de Zeltner and Holmes speak of the resemblance this interior decoration bears to Chinese art, particularly to that of the earliest known period; but neither ventures to claim an identity of origin.

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[1] Archeological researches on the Pacific coast of Costa Rica. Mem. Carnegie Museum, III, no. 1, Pl. VIII, fig. 2, and Pl. XVIII, fig. 2, 1907.

[2] The original water-color drawings for the five chromolithographic plates (I, XXVII, XLII, XLIV and XLVIII) in this volume were destroyed by fire before the first proofs of the same had been corrected.

The source from which the purple was obtained remains a mystery. That its origin was known only to a few, is evident from its rare use. It does not seem to have been known outside the province of Chiriqui, from which only eight specimens have been reported that include purple as a delineating color. Six are in the Yale Museum and two in the United States National Museum. The color probably comes from a non-ferruginous metallic oxide and was apparently applied before firing. Had it been applied after the firing, a vegetable or animal dye might have been used; that from a mollusk (*Purpura patula*) for instance, which, according to Dr. H. Pittier de Fabréga, may be found clinging to the rocks between high and low tide levels on both the Atlantic and the Pacific coast of Panama.

The purple industry is practised by the natives of Caño Island, off the mouth of the Diquis river; also by those living at *Golfo Dulce*,[1] on the southwest coast of Costa Rica. In Nicoya, the Indians color their cotton thread in a primitive manner by simply drawing it over the shell opening of the snail, thereby dampening it in the escaping purple liquid. The color, which is at first greenish yellow, becomes violet on drying. The shell is reddish about the opening, reminding one of *P. hæmastoma* Linné of the Mediterranean, with which the fishermen of Minorca still mark their linen. On the other hand, the purple of the ancient Phenicians and Greeks came from *Murex trunculus* and *M. brandaris* Linné.

On page 181 of his *Conchyliologie* (1742), M. Degallier d'Argenville states that the "*Conque Persique*" is made use of both in Panama and Guatemala to color cotton thread and, on that account, is called "*Pourpre de Panama.*" According to van Maartens, the "*Conque Persique*" of d'Argenville is the *Purpura persica* of Brugière and Lamarck, a species very similar to *Purpura patula* and its representative in the Indian Ocean.

As early as 1744, Don Antonio de Ulloa saw at S. Elena, in what is now Ecuador, and also at Nicoya (Costa Rica), purple color produced from a snail, and speaks of it as being pronounced and durable, so that it lost nothing either from frequent washing or from long use.

Thomas Gage[2] was a still earlier observer, his account being as follows:

> "About *Chira*, *Golfo de Salinas*, and *Nicoya*, there are some farms of *Spaniards*, few and very small *Indian* Townes, who are all like slaves employed by the Alcalde Maior, to make him a kind of thred called Pita, which is a very rich Commodity in *Spain*, especially of that colour wherewith it is dyed in these parts of *Nicoya*, which is a purple colour; for the which the *Indians* are here much charged to work about the Sea shore, and there to finde out certain shels wherewith they make this purple dye."

In this connection, the observations of Mr. C. V. Hartman are interesting. On one of his recent expeditions to the Pacific coast of Costa Rica, he visited Guanacosta, where he saw an Indian woman from Chiriqui wading in the water in search of Purpura. She would put the shell to her mouth and blow into it, causing the snail to discharge a greenish yellow fluid, which she applied to white cotton thread. The fluid in drying turns to purple.

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[1] Joaquin Bernardó Calvo. Administracion Soto, República de Costa Rica, Apuntamientos geográficos, estadísticos é históricos. S. José de Costa Rica, 1886.

[2] The English-American, his Travail by Sea and Land: or, A New Survey of the West-Indies, Containing A Journall of Three thousand and Three hundred Miles within the main Land of America, 192, 193. London (R. Cotes), 1648.

This industry was met with recently in Tehuantepec, southwestern Mexico, by Professor Eduard Seler, who while there obtained a petticoat or tunic (Span. *enaguas*), which the Zapotecan women wear only on special occasions and which but few can afford to own. The costliness of the garment is explained by the quantity of snails that would be required to color it. The snails in question are not very plentiful. They are taken from the water alive and spit upon (man bespucke sie). The fluid emitted by the animal on account of this unusual treatment is collected and the creature thrown back into the water. This is certainly a more economical process than the removal of the soft parts from the shell, customary in Ulloa's time. Mrs. Zelia Nuttall[1] notes a survival of the purple industry in Mexico.

The use of purple in the decoration of pottery is not only exceedingly rare in Chiriqui, but seems to be confined to that culture area. The nearest approach to it that I have been able to discover is seen on a vase from Mercedes (Costa Rica) belonging to the Keith collection. Curiously enough the purple is employed as a ground color on the piece in question, the pattern being produced by the lost color process. The design is therefore purple, while the interspaces are covered with apparently the same non-adhesive black that was used for a like purpose on the lost color ware of Chiriqui. In the character of the paste and the modeling, however, the specimen resembles neither of the two Chiriquian wares, lost color and polychrome.

Various Objects of Clay.

The ancient artificers of Chiriqui left practically no architectural monuments. Their fame must rest upon the achievements of the potter, the goldsmith and the sculptor. In the mastery of clay they had few equals and no superiors on the Western Hemisphere. This is shown in the infinite variety of form and perfection of the modeling, in the painted as well as plastic decoration and the variety of uses to which the product was put. The pieces already described were vessels either for domestic use or for ceremonial and decorative purposes. In addition to this general class, there are various objects of clay, such as stools, similar to those executed in stone; spindle-whorls; stamps; small receptacles with removable covers, that may have served as needle- or jewel-cases; figurines or statuettes and musical instruments, the latter including rattles and whistles.

STOOLS.

The genetic relationship between metates and stools was referred to in the chapter on objects of stone. There is a series of clay stools that follow rather closely the types executed in stone, except that they are more ornate, as might be expected from the ease with which clay may be modeled. They all belong to the terra cotta ware.

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[1] Putnam anniversary volume, 368–384, 1909.

A series of clay stools is represented in Plate XLVI. One of the more elementary forms is shown in figure *a*. The top is nearly square, concave in both directions and without decoration. There are four legs, the two on each side connected by a basal crosspiece, leaving the ends open. A figure, half-human, half-monkey, stands between each pair of legs and helps to support the seat or plate. This piece resembles one stage in the development of the metate (see fig. 21) on the one hand and, on the other, the wooden seats (see fig. 22) in use among the Chiriquians of today.

Among the clay stools the elements of the prevailing type are seen to good advantage in figure *b*. The seat is round instead of square and the four legs rest on a ring at the bottom. The whole structure is strengthened by two opposite comparatively large grotesque figures, with monkey heads and human bodies. These are hollow and serve as rattles. Similar figures are to be found among the gold objects. In fact the metal-worker's technique seems to have been borrowed by the makers of the clay stools. Contrary to the general rule, the top in figure *c* is gently convex instead of concave. The four flat legs to which grotesque figures are applied rest on a connecting ring at the bottom. The four interspaces are almost completely filled by four supporting figures.

An interesting type of stool is shown in figure *d*. The three legs or pillars are spread laterally till they almost meet. In other words, the top or seat rests on a hollow stand whose walls are continuous except for three narrow vertical slits. Three fantastic forms are applied to the supporting walls. These are slit on the hollow bodies of the figures outside. To a marked degree, the flattened or beaten character of the arms of the latter resembles work in metal. There are nineteen additional small grotesque heads applied to the margin of the seat. An incised braidlike fillet encircles the base; a similar one is placed beneath the series of small heads. Incised zigzag patterns relieve the monotony of what would otherwise be plain interspaces. They are probably serpent motives and are so placed as to appear to be held in the hands of the three applied figures, recalling the attitude of the alligator-god holding a snake in either hand (see Pl. XLVIII, fig. *g*).

A low stool with convex seat is reproduced in figure *e*. The circular wall of the hollow stand is broken at irregular intervals where openings of various shapes and sizes are so made as not to interfere with, but on the contrary to heighten the effect of the numerous applied figures of men and monkeys. The bodies of all these are uniformly marked with diminutive circular indentations, which occasionally appear also on the supporting wall. Three of the figures have human bodies and monkey heads; two of them are inverted, the other is upright. The remaining ten are long-tailed monkeys, apparently both old and young; all of them in picturesque attitudes, some playful, some demure.

In figure *f*, the monkey forms that support the seat are similar to those seen in the stone stools (see Pl. IV, fig. *d*). The animals seem to be swinging round a circle holding each other's hands. The tail of each is fused with the left elbow of the figure on its right and is also supported by a tiny monkey sitting on the basal ring below it. The margin of the seat is battered in places, as if the piece had seen service in some capacity. The seat of one rather tall stool of crude workmanship is supported on the heads of four caryatids, whose arms are disposed after the fashion of the "Panama Venus" (see fig. 40). The seat of the smallest clay stool in the collection rests on the uplifted heads and tails of four animal figures.

The largest and in many respects the finest piece of this kind is reproduced in figure 259. It measures 30 centimeters across the top and is 17 centimeters high. There are but three legs alternating with strange half-human forms that stand on the connecting ring below and help to support the concave seat above. Except for the loin-cloth and absence of tail, there is little to suggest the human figure. Here again the arms are fashioned as if of hammered gold. The bodies are hollow, slit down the back and each carries a clay ball. The grotesque head is not human. It may be that of an ape or an alligator, the horizontal flattening of the jaws suggesting the latter. In some respects, the entire figure is analogous to certain gold figurines of the alligator-god. There are nineteen additional small heads surrounding the rim. The seat is concave and highly polished for ware of this kind.

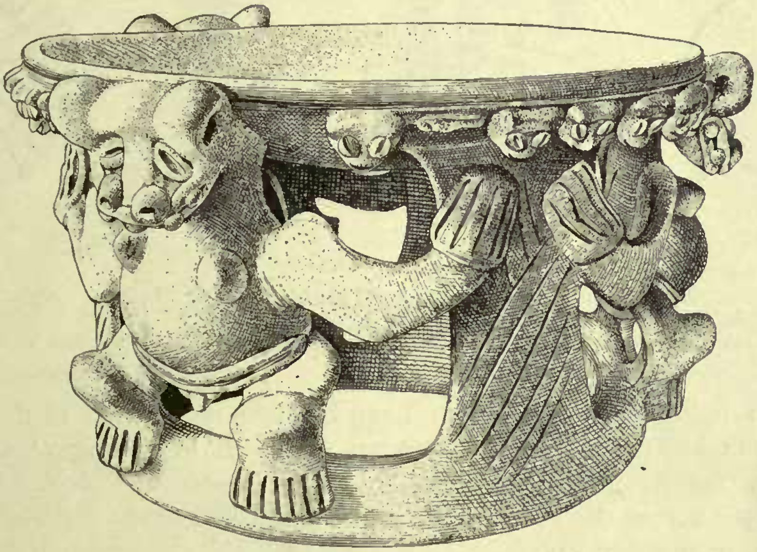


Fig. 259.—Large fine clay stool, the seat supported by three legs alternating with strange half-human forms. Armadillo ware. $^1/_3$

SPINDLE-WHORLS AND STAMPS.

The spindle-whorl is one of those links that bind the archeology of region to region and of age to age. The weaver's art seems to have developed in widely separated parts of the world and in some places earlier than in others. Spindle-whorls were found by Schliemann at Troy, by Keller in the Swiss lake-dwellings, and by many archeologists in various parts of Europe and America. There is often a striking similarity between those found in regions remote from each other; as, for example, Troy and Mexico. The collection of spindle-whorls from Chiriqui is small, consisting mainly of plain perforated disks made from potsherds (fig. 260). In one specimen (fig. 261), the axis is somewhat prolonged in one direction and about it are two opposed figures, probably human, each indicated by a head and arms in relief. The head and arms only are indicated (fig. 261). This and the preceeding are both in the natural color of the baked clay.

Specimens belonging to this class are extremely rare. Holmes figures none whatever. The only one in the Yale collection is bell-shaped and made of the same paste as the pottery of the scarified group (fig. 262). The paint is also the same. There is an attempt at a perforation through the part serving as a handle, but the two holes do not seem to have become continuous at a central point. The small stamp at the top resembles an eye with branching rays. The large stamp at the mouth of the bell is of the same nature and design; but instead of a single slit across the eye, there are two forming a cross, outside of which are two concentric rings of rays.

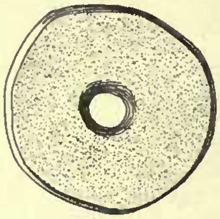


Fig. 260.

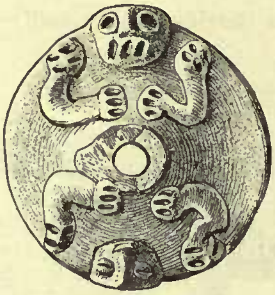
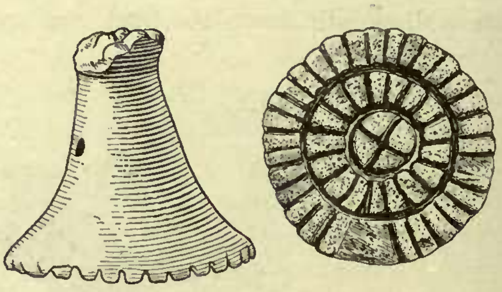


Fig. 261.



a Fig. 262. *b*

Fig. 260.—Spindle-whorl consisting of a plain perforated disk. $^{3}/_{4}$
Fig. 261.—Spindle-whorl decorated with heads and arms in relief. $^{2}/_{3}$
Fig. 262.—Bell-shaped stamp; *a*, side view; *b*, view of lower end. Scarified ware. $^{2}/_{3}$

NEEDLE–CASES.

Under this head is grouped a series of small oblong to oval receptacles, the use of which is more or less problematical. They were called by Holmes needle-cases, but he also suggested that they could have served to contain "any other small article of domestic use or of the toilet." They belong for the most part to the lost color ware. They consist of two parts, body and lid. Both are perforated near their margins of contact, in such a manner as to make the holes of one coincide with those of the other. The two specimens illustrated (figs. 263–264) belong to this lost color group of ware; the lid or cover is missing from each.

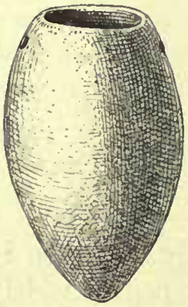


Fig. 263.

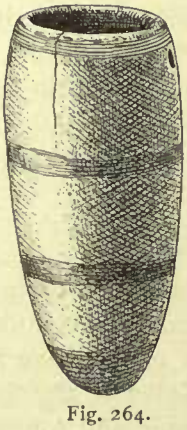


Fig. 264.

Fig. 263.—Needle-case. Lost color ware. $^{2}/_{3}$
Fig. 264.—Needle-case; from Divala. Lost color ware. $^{2}/_{3}$

FIGURINES.

The majority of objects in clay that may be classed primarily as figurines represent man. On the other hand, plastic life forms as ornaments or supports for vases rarely have human attributes. The primitive artist everywhere has familiarized himself with the animal forms about him more than with that of his own kind. This is somewhat unexpected, as the human model would seem to be the most available from every point of view. The cave-dwellers of Europe have left many and excellent engravings and frescoes of species now extinct. They took little pains however to leave portraits of their own race. The early human figurines of Greece were extremely primitive, particularly as regards the physiognomy. The faces were more birdlike than human. The heads of the human figurines from Chiriqui are perhaps more rodentlike than avian. The Chiriquian artist seems to have treated the human form as a joke, the result being generally grotesque if not even ludicrous. When it came to modeling an owl or a peccary however his work was more faithful to life.

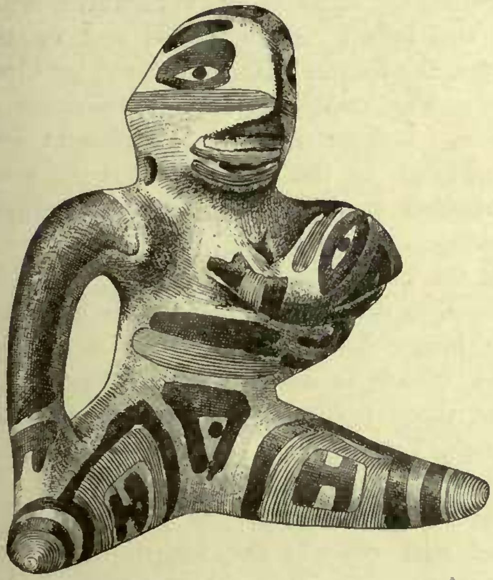


Fig. 265.—Human figurine representing mother and infant. Alligator ware. $^{1}/_{1}$

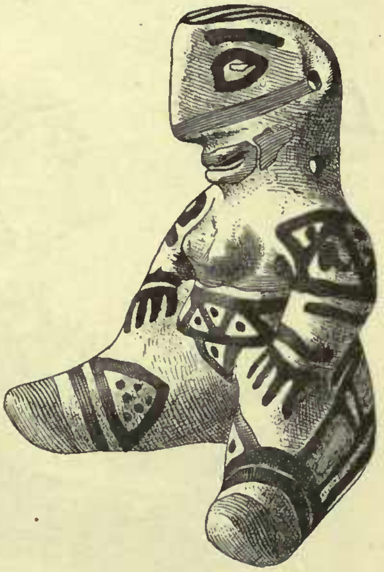


Fig. 266.—Human figurine. Alligator ware. $^{2}/_{3}$

Figurines that are first of all musical instruments are placed under the latter head. On the contrary, those that contain pellets are retained here, since the typical gourd-shaped rattles make a class by themselves. Every figurine in the series as constituted belongs to the so-called alligator ware with its characteristic paste, slip, delineating colors and decorative motives. All are perforated transversely through the neck, evidently for suspension. As has been said, a majority are represented as human, or perhaps more accurately, as divine. Figure 265, for example, reminds one of Isis and Horus; a mother seated, her right hand resting on the knee and her left holding an infant to her breast. The nose, the most prominent feature, is fused with the forehead by means of a high bridge; the mouth is hidden beneath the overhanging nose and the chin is wanting. This type of profile is repeated over and over again.

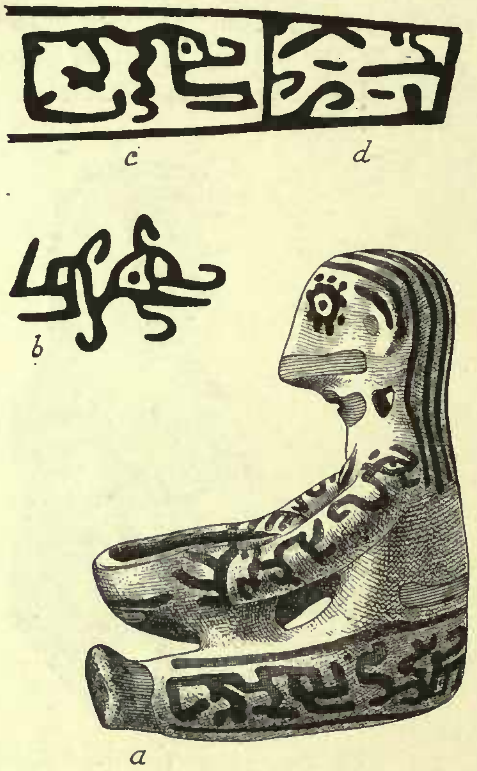


Fig. 267; *a.*—Seated human image holding a shallow bowl. Alligator ware. 1/3; *b.*—Detail of double-headed alligator decorating the right arm; *c*, *d.*—Detail of one end of the panel decorating the legs. 2/3

The hair, represented by black stripes, reaches to the shoulders. This character together with the sitting posture and spreading legs is common to all the female figurines. The base in each of these is pierced by three holes or slits that communicate with the hollow interior of both legs and body. These seated figurines may all be images of one and the same mother goddess. They have their counterpart not only in Isis and Horus, but also in Bachue and her son of the Chibchas; in the Mexican Goddess of Flowers, Xochiquetzal, with Macuilxochitl-Xochipilli on her arm; and in Ciuacouatl of the Valley of Mexico.

A similar statuette is shown in figure 266, evidently the same mythical character without the infant. Both hands rest on the thighs, the fingers being indicated by black lines. The usual conelike termination of the legs is here recurved to represent feet. In addition to the neck perforation, there is another marking the external auditory opening.

In the case of figure 267 *a*, it would be difficult to determine which sex is intended. The image holds in its hands a shallow bowl, which is also securely attached to it at three points, the abdomen and the knees. The painted decoration is an important feature; representations of the alligator in black cover both arms and fill a panel that extends the length of the two legs from ankle to ankle, passing across the rump. Of the alligators that can not be seen in the general view, three are selected as samples. The one with a double head (fig. 267 *b*) is from the right arm. The artist has contrived to show both nuchal appendages, but the feet of only one alligator. In the figure (267 *d*) at the end of the panel, a different technique is employed. Here it is the field left unpainted that makes up the figure of the alligator; in other words, with the single exception of the eye, the black determines the form represented without being a part of it. It is the double-headed form of the alligator and evinces a high degree of imaginative skill, the head on the right being inverted. Two such seated figurines holding bowls are in the collection of Dr. W. J. Lamson of Summit, N. J. They also belong to the alligator group, but are not ornamented with figures of that animal.

In figure 268, is shown what appears to be a human form seated on a stool or metate. The hands rest on the shins; and the feet, which projected over the edge of the seat, have been broken off. The seat itself has four feet. This specimen recalls one from Santo Domingo, illustrated by Fewkes, and points to a relationship between metates and stools.

A different type of image is reproduced in figure 269, which exhibits a standing masculine figure with short legs, flattened body and elongated face, on which the nose, broken in this instance, continues to be the dominant feature. On the head is the characteristic conical cap met with in the armadillo, as well as in the handled, group of ware. The body and head are both hollow, the latter being supplied with pellets. The external auditory opening is marked by a perforation. This specimen is from Jacu and probably represents a water-carrier, as witness the jug borne on the back. The painted decoration is injured by surface disintegration due to weathering. There is a red field on the throat and breast reaching down over the abdomen.

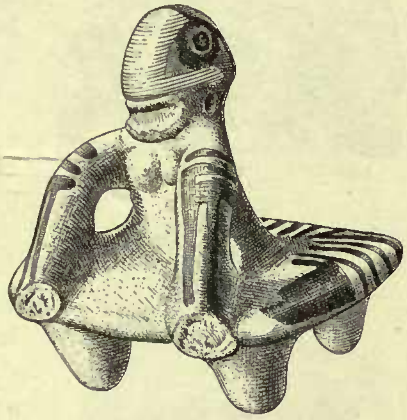


Fig. 268.—Human figure seated on a stool or metate. Alligator ware. 2/3

Figurines of animal forms other than those adapted as whistles are not very numerous. Figure 270 represents the armadillo. The attitude suggests the act of burrowing or possibly an attempt to roll up for defense, which has been frustrated by the interposition of a thick bar placed transversely across (or through) the stomach and projecting some distance beyond the carapace on either side. The head is depressed, the nose pointing slightly backward and the chin pressed against the chest. The tail, indicated both in the round and by means of a band of black paint, is brought forward underneath, applied to the ventral surface. The extremities are sharply flexed, the toes of the forefeet pointed forward and those of the hindfeet turned backward (fig. 270 *b*). The three regions of the slightly raised carapace are quite distinct. The smooth surface of the anterior and posterior sections is given a uniform coat of black paint, while the central region is painted red and grooved so as to bring out in relief three rather wide bands. The transverse bar passing through (or across) the stomach is also painted red. One of the projecting ends of this rod was evidently broken before the red paint was applied, as a coat of it is carried over the uneven surface of the break. Or the break may have occurred while the object was in use and was afterward painted over to match the surrounding color. It is, at all events, a case of prehistoric repairing. The part broken off may have been a head for which the opposite end could have served as a tail, since the diameter of the latter is not so great as that of the

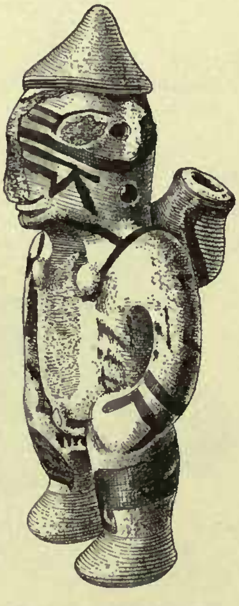


Fig. 269.—Standing masculine figure; from Jacu. Alligator ware. 2/3

missing protuberance. There is a ventral perforation that communicates with the interior of the hollow body.

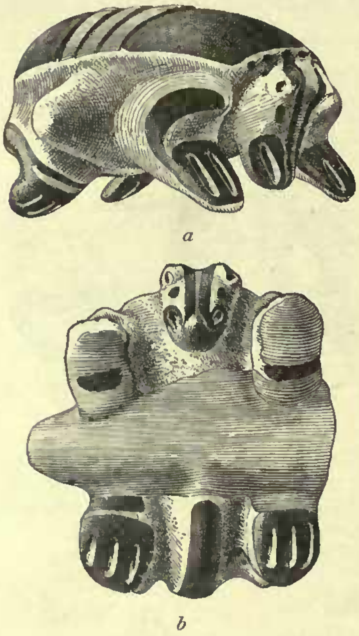


Fig. 270.—Figurine representing the armadillo. *a.*—lateral view ; *b.*—ventral view. ¹/₁

It is interesting to note that the disposition of colors on the carapace of the armadillo whistle (see fig. 303) and of this armadillo figurine is the same. In each case, the central banded region is in red, while the rest of the carapace is in black. In both cases also, a red median band, bounded by two parallel lateral black bands, is carried between the ears and forward toward the tip of the nose. The treatment of the eyes and nostrils is also identical.

Two examples of the peccary (*Dicotyles*) are given. On account of its stripes, one of these (fig. 271) might be intended for a young tapir (*Tapirus bairdii*). Black is the prevailing color, red occurring only on the snout and as a single transverse band on each leg. The mouth is partly open, exposing teeth; the lower jaw is much shorter than the upper. There is the customary neck perforation, and in the hollow body are a number of pellets.

Figure 272 leans to the grotesque, the body being excessively short. Holes for nostrils are punched in the large cylindrical snout, the end of which is painted red. There are also two narrow transverse bands of red on each leg. Black is employed in mass to cover practically the entire body. In discussing the fauna of the Isthmus, Seemann[1] says: "Pigs wander in herds about the forest and are dreaded by the natives who, when they see them, seek safety in flight or by climbing a tree."

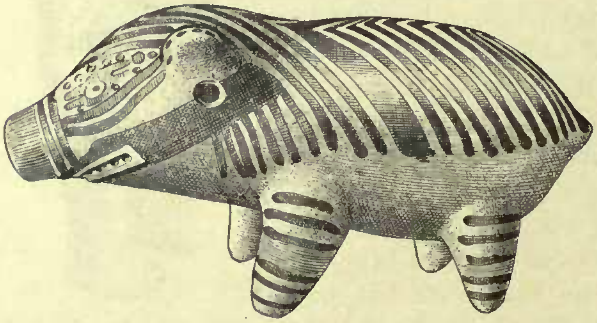


Fig. 271.

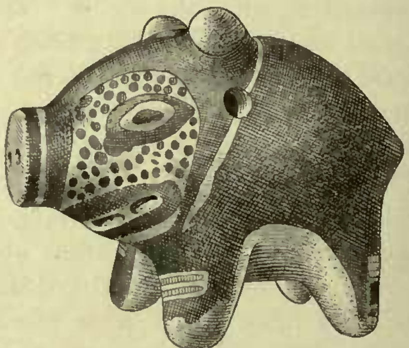


Fig. 272.

Fig. 271.—Perforated figurine representing the peccary (Dicotyles). Alligator ware. ¹/₂
Fig. 272.—Grotesque figurine representing the peccary. Alligator ware. ¹/₄

As the colored peccary (*Dicotyles tajacu*) is not savage and does not attack man or other animals, the variety referred to by Seemann is presumably the *Warree* or white-lipped peccary (*D. labiatus*).

[1] Op. cit., 262.

MUSICAL INSTRUMENTS.

In treating of this subject we are limited to musical instruments of clay and of metal, none made of bone, gourd, wood, etc., if ever in existence, having been preserved to us. Rattles, drums, bells and whistles are included in the list. In addition to these specialized instruments, the ancient potters were fond of dropping pellets into everything hollow that might serve to give forth a rattling sound. The legs of practically all tripods were thus treated, as were many plastic life forms that adorn the shoulders of vases. By the application of the same principle to the gold ornaments discussed in another chapter, the bell with free clapper instead of the rattle proper was evolved.

Rattles.—All objects of clay employed primarily as rattles take the form of the gourd, which, when dried, makes a complete rattle, the prototype of those made of clay. One example (fig. 273) belonging to the lost color ware is chosen for illustration. It is a typical specimen with its globular body and rather long straight neck or handle, similar in shape to the rattles held in the right hand of a number of gold figurines (see Pl. XLVIII, fig. *e*). The upper part of the handle is a hollow cylinder open at the end; its base is solid, with the exception of a transverse perforation that serves as a means of suspension. In the upper part of the body, at a given level, are four slits that communicate with the hollow interior. The latter does not connect in any way with the hollow of the handle or its transverse perforation. This specimen comes from Divala. Another specimen, unfortunately broken, is particularly graceful in form, and has four cruciform slits in the peripheral zone. The scar left by the removal of the handle shows that there was no communication through the handle between the interior and the outside. The dozen or more oval pellets of clay inside are worn smooth by use.

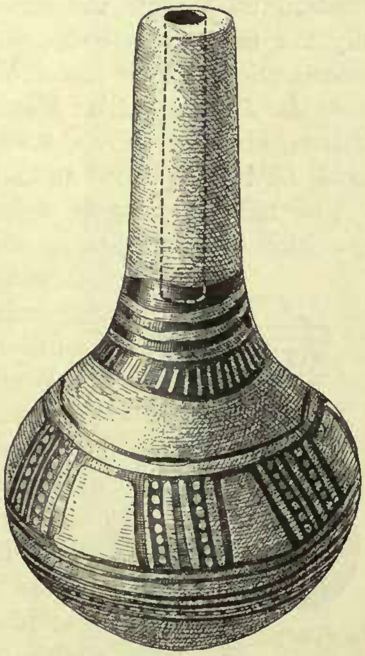


Fig. 273.—Gourd-shaped rattle. Lost color ware. ²/₃

Drums.—This type of percussion instrument has no representative in the collection, unless it is the specimen figured in Plate XXV (fig. *f*). A number of the whistles however have drum-shaped bodies, which fact goes to prove that, among the ancient Chiriquians, the drum was a familiar object.

Wind-instruments.—Under this head may be grouped by far the largest number of Chiriquian musical instruments of clay. According to Pinart,[1] the musical instruments of the present natives (*Guaymis*) of the region are limited chiefly to the bone flute and the marine conch-shell. To these he adds the drum made by hollowing out the trunk of a tree and covering one end with skin. Pinart, who believes the Guaymis to be the descendants of the builders of the ancient huacals, describes one of their ceremonies, the *balza*, in which the conch-shell plays an important rôle. I quote the author's own words:

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[1] Alphonse Pinart. Les indiens de l'État de Panama. Rev. d'ethnog., VI, 33, 117, 1887.

> Quand un village a décidé de donner une *balzaria* et que l'époque en a été fixée, l'on expédie des messagers prévenir les autres villages et faire les invitations . . . On invite tout le monde, hommes et femmes, jeunes et vieux. Suivant les distances à parcourir, chacun par groupe de famille se met en route de manière à arriver au lieu du rendez-vous deux jours avant le commencement des cérémonies . . . Durant le trajet, les invités soufflent de temps en temps dans de grosses conques pour que leur son fasse connaître à toute personne habitant près du chemin, leur passage et le but de leur voyage.

If these Guaymis are descendants of the ancient race, it is not strange that the latter should have left behind them so many examples of their wind-instruments. The makers were not satisfied with stopping at the plain flute form, or even with the ocarina. Their love for the plastic life form is nowhere better exemplified than in the series of whistles in which the bird form is quite naturally the favorite embodiment. On the other hand, some animals are represented whose cries bear no resemblance to the sound of a whistle, as may be inferred from the following list: Man, monkey, puma, deer, tapir, squirrel, ground-squirrel, iguana, armadillo, crab, scorpion, parrot, owl, duck, partridge, several species of small birds and other animal forms that can not be definitely determined.

The tail or a leg is usually adapted as a mouthpiece and there is always provision for suspending the instrument, chiefly by means of a transverse perforation through the neck. The finger-holes, generally two in number, have no fixed position except in the bird forms, where both are almost invariably on the breast.

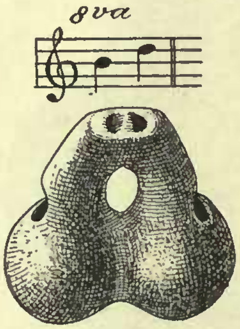
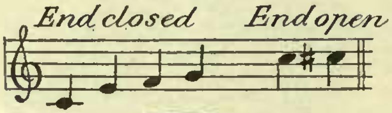


Fig. 274.—Double whistle. 3/4

While the power and range of these whistles and flutes are limited, the quality of the tone is often melodious. There are generally three whole tones, each of the two intervals forming a major second. Sometimes the first interval is equal to one and a half whole tones, i. e., a minor third, making the compass from the lowest to the highest tone equal to the first four notes of the scale instead of the first three. The tones are noted according to high pitch. The lowest tone is produced with both finger-holes stopped, the middle tone with one hole open and the highest with both holes open. The holes are usually so nearly of the same size that it makes no difference which is opened first. The pitch can be made to vary with the force of the breath. By making judicious selections, a number of instruments may be played in unison.

In the construction of the whistling apparatus one and the same principle is always involved, viz., the directing of a stream of air against a cutting edge at the mouth of a chamber. The working out of this principle in one of its simpler forms, except that the parts are in duplicate, is exemplified in figure 274. There is a fusion of two gourd-shaped whistles at the points of contact between the bodies and at the termination of the necks; the latter form a two-holed mouthpiece, thus making it convenient to blow both whistles at the same time. As these are not of the same pitch, the result is a shrill ear-splitting sound that can be heard for a great distance. On the other hand, the two tones can be produced separately by covering first one and then the other vent-hole. Dr. W. J. Lamson has about a dozen of these double whistles.

In order to increase the range, it was necessary to pierce the air-chamber by means of finger-holes. All the other instruments have from two to four of them, the number of tones producible being always one more than the number of holes. No account is taken of the tones produced by increasing the force of the breath. In the reed-shaped instruments, of which there are two in the collection, additional range is produced by leaving the cylindrical chamber open at the distal end. Figure 275 is an example. Its range with the end of the chamber first completely closed and then entirely opened is expressed in the scale accompanying the figure.



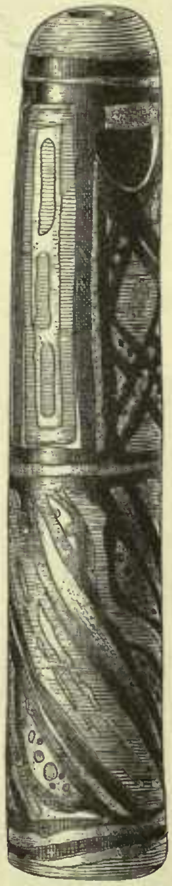


Fig. 275.—Reed-shaped whistle decorated with alligator motives. Alligator ware. 3/4

The distal hole is so near the end as to be of no use when the latter is open; otherwise, two more tones could be added, one with the distal hole open and one with both open. Every possible tone between the lowest and highest in this scale may be produced by only a partial closing of the end, the pitch depending on the degree of closing. This instrument is admirable in its way, but it could have been improved; first by placing the distal finger-hole a little farther from the end, and second, by adding a third finger-hole nearer the mouthpiece. The colors, black and red on a cream slip, are perfectly preserved. The designs are grouped in two zones and represent the oft-repeated alligator motives, body-lines and body-markings.

The collection includes three instruments that differ from the flute type only in the form of the chamber, which is top-shaped instead of cylindrical, and in the size of the terminal opening, which is relatively small. One of these from El Banco is reproduced in figure 276. It is unpainted and incised. The surface of the fine-grained paste is blackened by handling. The vent-hole is at the base of a solid conical tip, on one side of which is attached a looped fillet of clay, enclosing for only a part of its way the air-passage leading to the vent. On the other side is a tiny frog in relief. In addition to the hole at the opposite end, there are two finger-holes near the periphery, by means of which three tones may be produced with the end-hole closed and three with the end-hole open. Were it not for the eccentric position of the vent and the fillet enclosing the air-passage of the mouthpiece, this specimen might be easily mistaken for a spindle-whorl.

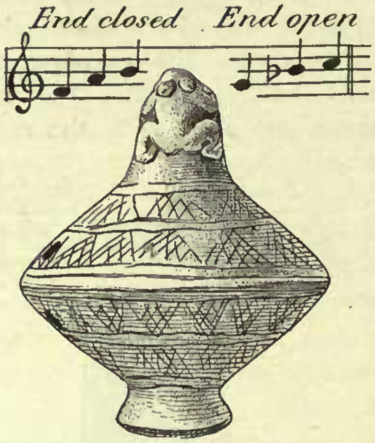


Fig. 276.

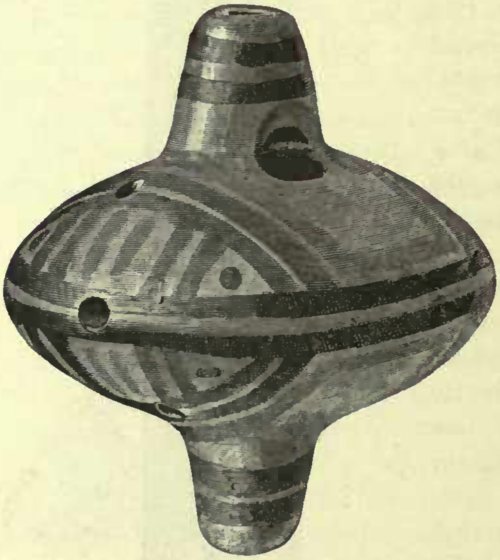
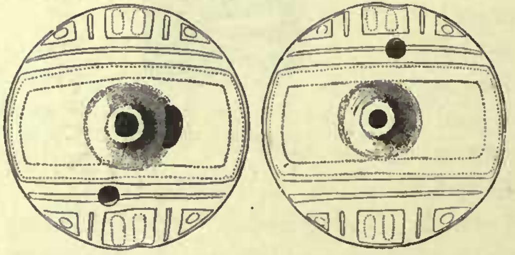


Fig. 277.



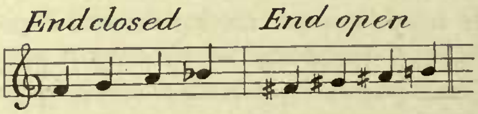
a Fig. 278. *b*

Fig. 276.—Top-shaped whistle with two finger-holes; from El Banco. 1/1

Fig. 277.—Top-shaped whistle with three finger-holes. Alligator ware. (After Holmes.) 1/1

Fig. 278.—End views of instrument shown in preceding figure. (After Holmes.)

Of the other two specimens belonging to this general type one is unpainted and incised like the foregoing. It also has but two finger-holes. The easily breakable part of the mouthpiece is lost, thus increasing the general resemblance to a spindle-whorl. The third instrument belongs to the alligator group of ware. In general shape and in the character of the painted designs, it is so much like the one reproduced by Holmes,[1] that I have borrowed his illustrations (figs. 277 and 278). The number of tones that can be produced is the same for both. The range of the Yale specimen is given in the accompanying staff, and is exactly the first half of the diatonic scale.



With possibly a single exception, there are no drums in the collection; but there are a number of drum-shaped whistles. One of the simplest of these is of plain biscuit ware. The chamber is not quite cylindrical, the diameter of one end being slightly larger than that of the other. The smaller end is surmounted by a plastic animal figure.

The combination of drum and bird is seen in figure 279. Here the drum is more nearly conical than cylindrical. Projecting from its convex surface are the head and tail of a bird, the tail serving as a mouthpiece. The neck of the bird is perforated for suspension. Two finger-holes are on the breast of the bird, this number being constant unless otherwise stated. The gently concave base is handsomely decorated and alligator motives cover the ventral surface of the bird.

Sometimes the drum is surmounted by grotesque life forms or combinations of the same, as in figure 280. In this case, the diameters of the drumheads are equal and somewhat larger than the central diameter. The end serving as a base is not decorated. The whole serves as a pedestal for a biped that is neither man nor ape nor bird, but in some respects resembling all three. An elaborate head-dress, painted and in relief, extends the length of the life form, downward and backward till it comes in contact with the margin of the drumhead forming the mouthpiece of the whistle. The perforation in the breast has no connection with the whistling apparatus. This instrument is exactly an octave lower in tone than the preceding.

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[1] Op. cit., figs. 245–246.

The same general scheme, but with additional life forms, is repeated in figure 281. The undecorated end on which the drum rests is perfectly flat and is perforated in the center by one of the two finger-holes. The panels on the sides are covered with familiar alligator motives, as in the preceding. The principal figure in the group on top is half man, half beast. Its arms extend back till the hands touch the arched body of a two-headed serpent. Attached to this body near the center of the arch are two small heads, bird or reptile. There is also a prop extending from the mouthpiece to the center of the arch against which the standing figure leans.

In by far the greater number of cases the air-chamber of these wind-instruments is but the hollow body of some life form, the bird being the favorite. Among birds, a number of varieties are met with, the one most frequently represented being the parrot. Pinart found that the totemic figure the most often used among the Guaymis is that of a small species of parrot, in honor of which he heard many chants. Lionel Wafer,[1] one of the early writers, in discussing animal life on the Isthmus says: "They have *Parrots* good store, some Blue, and some Green, for Shape and Size like the generality of the Parrots we have from *Jamaica*. There is here great variety of them, and they are very good Meat."

Attention is again called to the series of bird forms already noted in the discussion of the alligator group of ware. This avian character originated in a distinctly globular vase (see fig. 246) having aperture

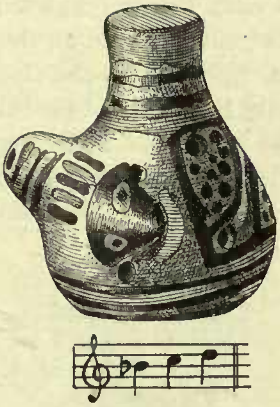

Fig. 279.

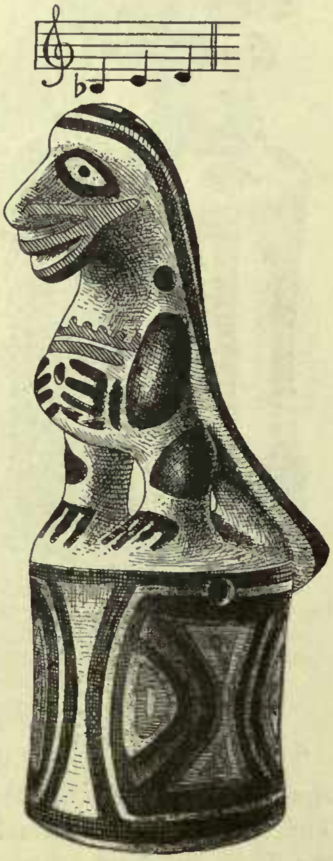

Fig. 280.

Fig. 279.—Whistle combining drum and bird form. Alligator ware. ³/₄

Fig. 280.—Drum whistle surmounted by grotesque biped life form. Alligator ware. ³/₄

and rim; the tail and wings of a bird in relief about its periphery; and the head, a mere protuberance on the side opposite the tail. Then followed a further differentiation, especially in the change from annular base to the bipedal condition (see fig. 247). Lastly the painted protuberance on the breast disappeared and a realistic removable head was made to fit snugly over the rim on top (see figs. 248, 249, 249 *a*). These birds represented parrots. We have among the whistles the same parrot form (Pl. XLVII), but much smaller in size and with non-removable head. A closer study of figure *a* reveals the fact that the head, though firmly united with the trunk, has the air of being detachable. This impression is heightened by the separation of the painted designs; that on the head and neck from that on the body. The genetic relationship goes back a step further, as witness the red spot on the pointed breast (compare with figs. 246 and 247).

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[1] A new voyage and description of the Isthmus of America. 2ᵈ ed., 91, London, 1704.

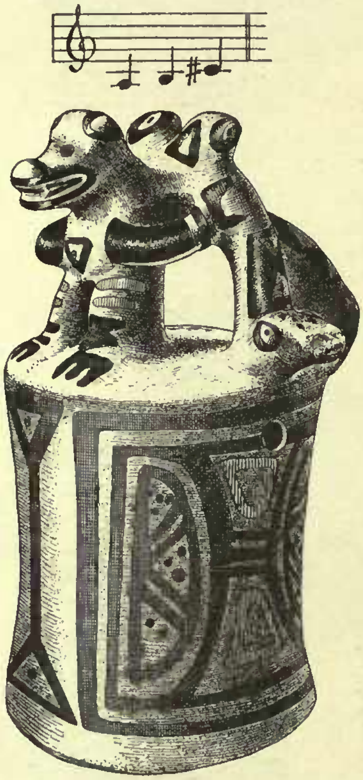
Fig. 281.—Drum surmounted by half-human figure combined with serpent and bird forms. Alligator ware. 3/4

That these are what might be called phylogenetic rather than fortuitous characters, is proved by their repetition. In figure *b*, one sees again the vestigial head on the breast as well as the removable looking head on the neck. Attention is also called to a painted design on the back that resembles the letter T. This same design also appears on other specimens. The tones produced by this whistle are the same as those of the preceding example.

In figure *c*, the head has the appearance not only of being removable but also of having been revolved on its axis nearly 180°, as if to emphasize this feature. There is also the red spot on the breast and the T on the back. Figure *d* is very similar to the two preceding, except that the red spot has disappeared from the breast, the latter at the same time losing its pointed character. This instrument produces the same tones as those represented in figures 279, 298 and 301, being just an octave higher than that illustrated in figure 280.

The head still sits lightly on the body in figure *e*, a specimen from Jacu. Here again we find the pointed breast, marked this time by a circle of black paint. The wings are outstretched as if ready for, or in the act of, flight. Instead of the T on the back, there is an attractive design in black representing some life form, a motive found also on Nicaraguan pottery. A bird of a somewhat different type is represented in figure *f*. The neck is shorter and the relatively longer beak rests against the breast. All these bird-whistles can be made to stand firmly on their feet without toppling over.

A species of water-bird is probably intended in figures 282 and 283. In the latter the beak is bent abruptly to one side and is in contact with the breast for its whole length. In the former the entire head is turned to one side, the end of the beak resting on top of the right wing.

The characteristic features of the owl are well rendered in figure 284. Although the head is proportionately too large, the effect on its anatomy of twisting the neck to one side speaks in every line. One almost forgets that it is made of anything so unyielding as clay; yet there is the sharp demarcation between head and trunk in respect to the disposition of the delineating colors.

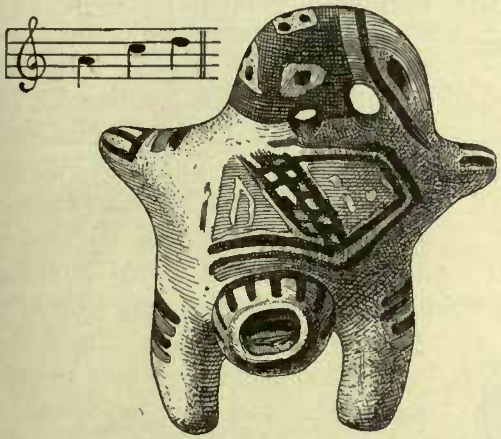
Fig. 282.—Bird-shaped whistle. Alligator ware. ¾

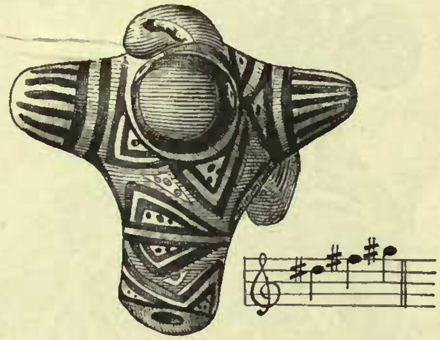
Fig. 283.—Bird-shaped whistle decorated with scale-group symbols. Alligator ware. ¾

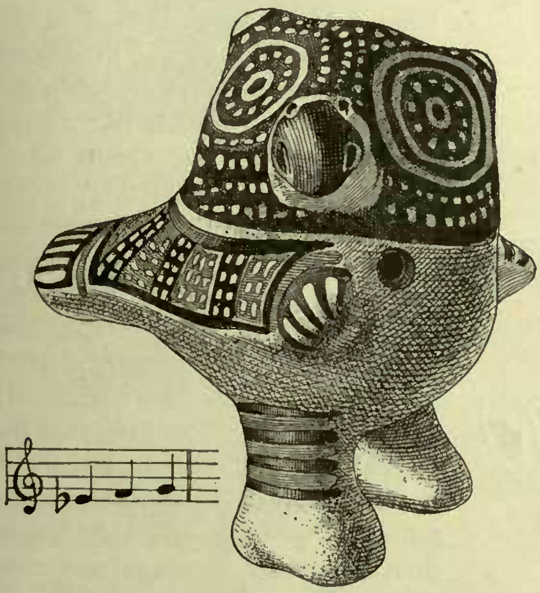
Fig. 284.—Whistle representing an owl. Alligator ware. ¾

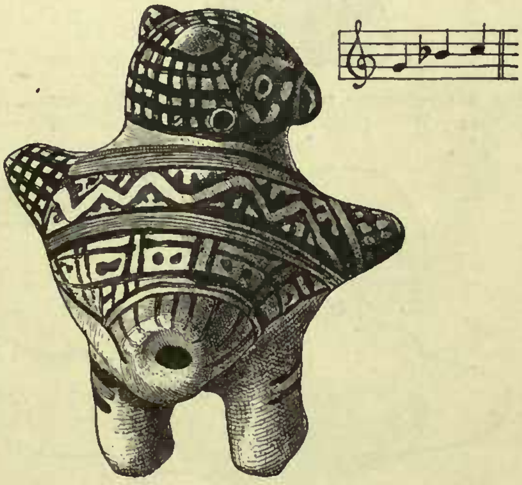
Fig. 285.—Owl-shaped whistle decorated with multiple body-line motive. Alligator ware. ¾

The owl also comes in for treatment in figure 285. A rear view is given in order to show the multiple alligator motive on the back. The head is turned to the right as in the preceding, but it is a head of clay set on the shoulders rather than growing there. It should be mentioned here that nearly all the whistles figured belong to the alligator group of ware.

A species of crested partridge is represented in figure 286. The head and neck are continuous with the body from the standpoint both of modeling and painted decoration; one of the rare exceptions that prove the rule. This whistle produces exactly the same tones as those produced by the whistles illustrated in Plate XLVII (figs. *a* and *b*). It would be difficult to determine the kind of bird represented in figure 287, an example of alligator ware from Divala, in which smoke and much handling have almost completely obscured the delineating colors. In it the two reversionary characters already noted are once more expressed.

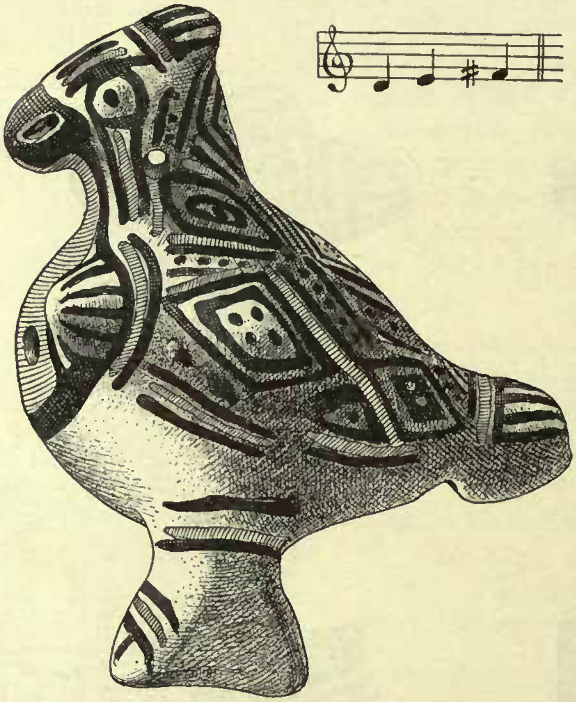

Fig. 286.—Whistle representing a crested partridge. Alligator ware. $^{1}/_{1}$

A species of duck, probably the teal, is reproduced in figure 288. Note the general attitude of the head, which is turned so that the long bill may have the protection of continuous contact with shoulder and wing. Fig. 289 is not a very effective whistle but a most interesting piece of modeling, as it represents a bird in the act of alighting. This is told in the attitude of feet, wings, neck and head, as well as the tail. The vent-hole is placed dorsally instead of ventrally. The ware is unpainted; the wing feathers are indicated by incised lines and the body is marked by numerous small annular indentations. Two of these, a little larger than the others, communicate with the hollow interior, thus forming finger-holes. They are so small however as to be of little use.

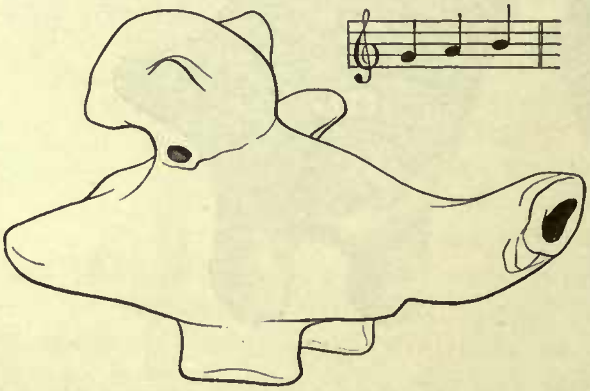

Fig. 287.—Bird-shaped whistle; from Divala. Alligator ware. $^{3}/_{4}$

There is a single specimen of armadillo ware among the bird forms. The modeling is indifferent. The head and feet are reduced in size, and the wings are entirely wanting. The finger-holes are placed on the sides, an exception to the rule. The three tones are full of melody. The simplification of parts is marked in the remainder of the series. A good example of this is shown in figure 290, where the danger of breaking is reduced to a minimum. The range is greater than usual, the first interval being a perfect fourth and the second, a major third. On the neck of a duck without head, feet or wings, there is perched a much smaller duck having a pair of heads (fig. 291). This grotesque specimen belongs to the lost color ware. The small whistles reproduced in figures 292 and 293 also belong to the lost color group. The smallest bird-whistle in the series has a maximum length of only 3.8 centimeters.

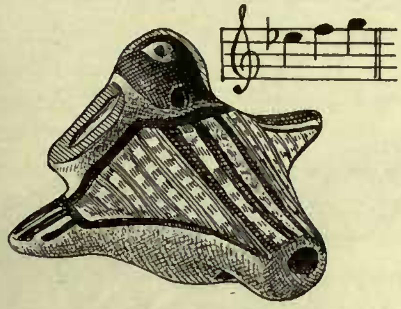

Fig. 288.—Whistle representing a duck. Alligator ware. 3/4

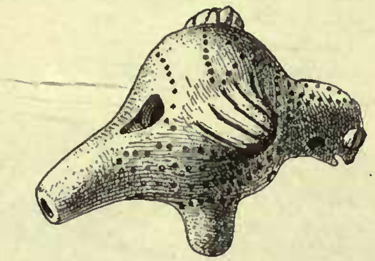

Fig. 289.—Whistle representing a bird in the act of alighting. 3/4

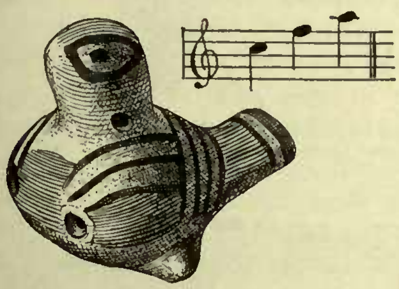

Fig. 290.—Simplified bird form of whistle. Alligator ware. 3/4

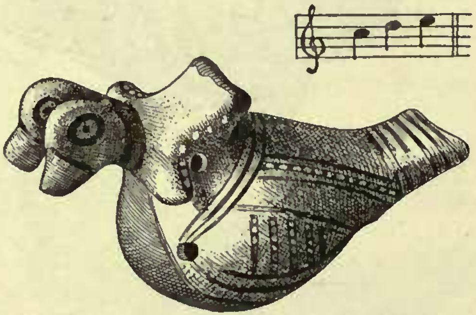

Fig. 291.—Composite bird form of whistle. Lost color ware. 3/4

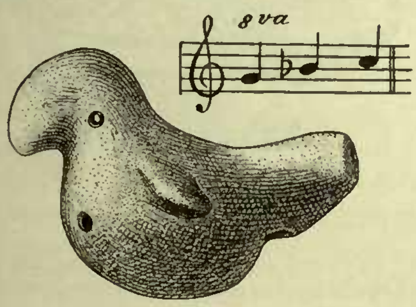

Fig. 292.—Small bird-shaped whistle. Lost color ware. 1/1

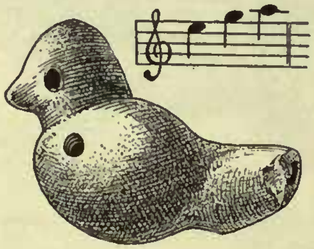

Fig. 293.—Small bird-shaped whistle. Lost color ware. 1/1

The crab form seems to have appealed to these ancient whistle makers. The forms are varied enough to suggest familiarity with several varieties. One of the finest examples is shown in figure 294. The designs painted on the back, including the multiple body-line of the alligator, with accompanying dermal markings, are in a fine state of preservation. The left (and this is true of the whole crab series) foreleg is converted into a mouthpiece.

A somewhat different type of crab is given in figure 295, which represents one of the very few whistles not provided with some means of suspension. No attempt was made to account for the exact number of legs in any of the crustacean forms.

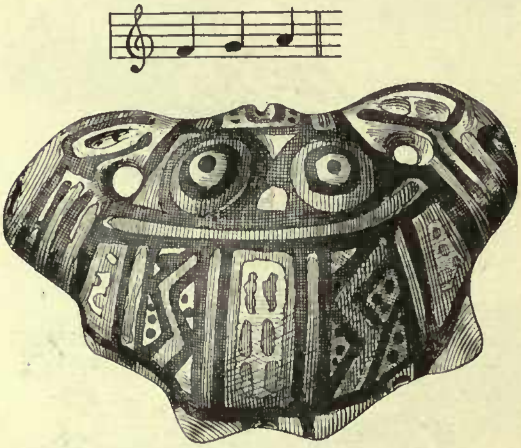

Fig. 294.—Whistle representing the crab, the back being decorated with alligator motives. Alligator ware. 3/4

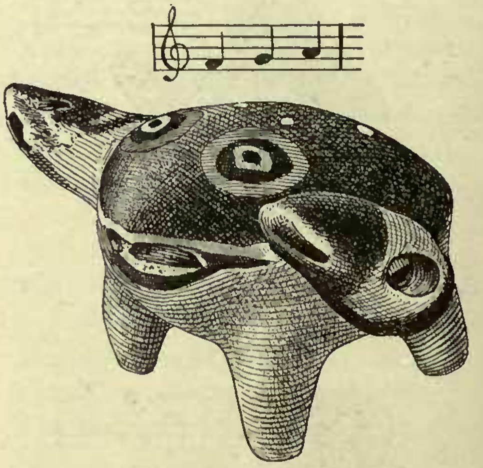

Fig. 295.—Whistle representing the crab. Alligator ware. 3/4

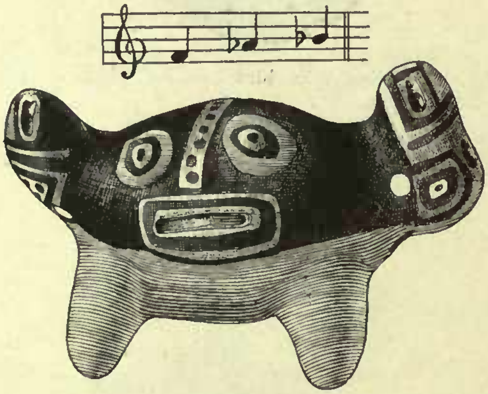

Fig. 296.—Whistle representing a round-bodied crab. Alligator ware. 3/4

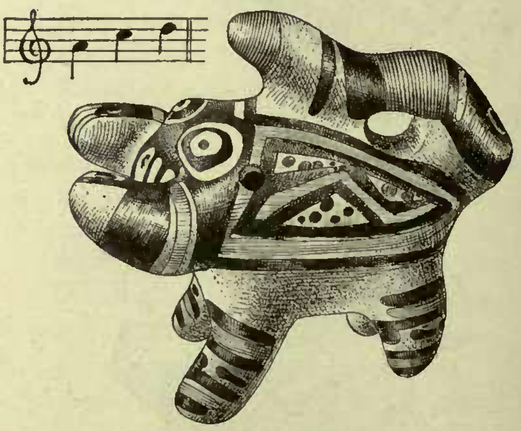

Fig. 297.—Whistle representing a scorpion, with alligator motives decorating the sides. Alligator ware. 3/4

They are all so fashioned as to stand on four legs like a quadruped, but also have an additional first pair armed with large claws like chelipeds and serving as weapons rather than as supports. The tones produced in these two crab-whistles are exactly the same. The artist was often very successful in giving concrete expression to an idea. This is seen in the representation (fig. 296) of a round-bodied crab just ready to strike. The left foreleg, converted into a mouthpiece, emulated so closely the head and beak of a bird that eyes have been painted on, thus heightening the resemblance. The chelipeds are both perforated for suspension.

The scorpion was likewise given only four legs in addition to the first pair (fig. 297). The long tail is flexed sharply till it comes in contact with the back, forming in this manner a loophole by which the figurine may be suspended. The sides are decorated with the multiple body-line of the alligator and its scale symbols.

Among reptiles, there is a good representation of a coiled snake with laterally flattened head (fig. 298). The mouthpiece is built on the lower ring of the coil, the end of the tail being hidden underneath the mass. The specimen belongs to the lost color ware, and the decoration has been almost completely lost through the rubbing off of the black paint.

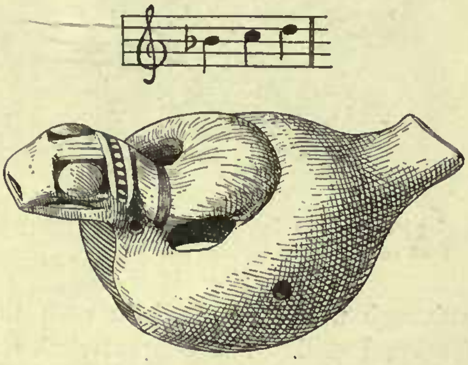

Fig. 298.—Whistle in the form of a coiled snake. Lost color ware. ³/₄

There is a composite form representing an iguana and snake, the flat-headed snake forming a crest the entire length of the iguana (fig. 299). The neck of the snake is arched, forming a loophole for suspension; its body and tail fuse with the crest of spines along the back and tail of the iguana. The dewlap is conspicuous. The right forefoot is converted into the mouthpiece of the whistle, which is capablé of producing three clear and musical tones. A panel on each side of the whistle is ornamented with the oft-recurring multiple alligator motive.

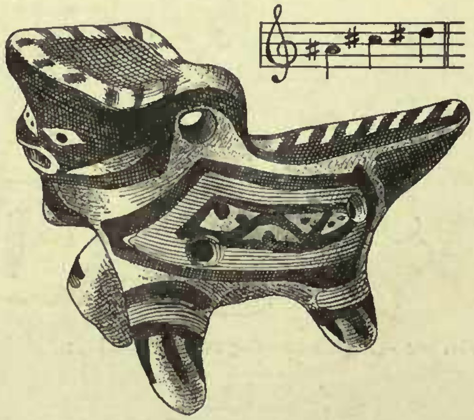

Fig. 299.—Composite form consistig of the iguana and snake, the sides being decorated with the multiple alligator motive. ³/₄

Various quadrupeds are included in the present series. The form can usually be determined by the successful rendering of some distinctive character. When doubt exists, it is as much due to our lack of knowledge of isthmian fauna as to any shortcoming on the part of the artist. Figure 300 is an example of one of the doubtful cases. In figure 301, more attention is given to detail, especially in the modeling of the head, which is partially separated from the body by a constriction. The most plausible explanation of this is seen in the series of birds with removable heads. This specimen, like the preceding, belongs to the lost color ware.

One is impressed by the sincerity of the attempt to represent some tardigrade species (fig. 302). This instrument is apparently the work of an apprentice unaided by any knowledge, technical smartness or trickery, and as such is full of interest. It belongs to the armadillo ware. There is a single clay pellet in each hollow leg, also one in the cavity common to both head and neck, so that we have to do with a rattle as well as a whistle. The representation of the armadillo (fig. 303), although not more realistic than the foregoing, evinces a higher degree of professional skill. The characteristics of the carapace are brought out by relief as well as by the red and black colors common to all alligator ware. The neck is perforated for suspension.

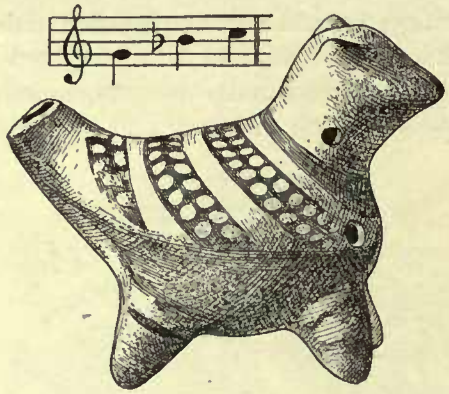

Fig. 300.—Whistle in the shape of a quadruped. Lost color ware. 3/4

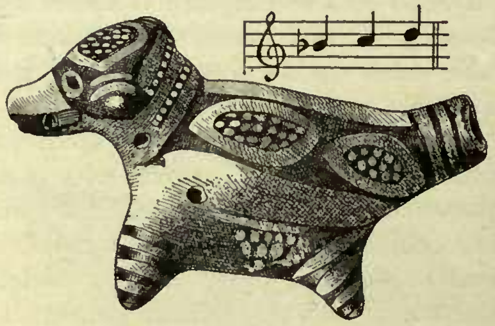

Fig. 301.—Whistle in which the head has the appearance of being removable. Lost color ware. 3/4

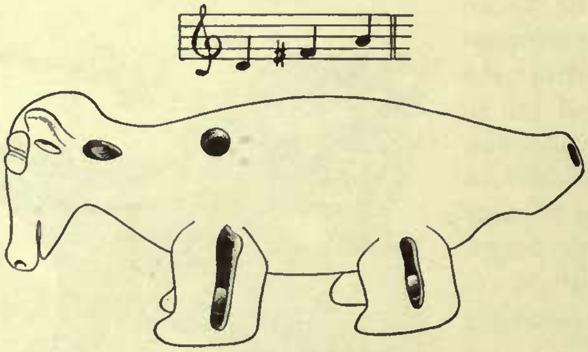

Fig. 302.—Figurine serving as both whistle and rattle. Armadillo ware. 3/8

The primitive artists may or may not have been divided into incipient schools of thought and expression. If they were, the influence of academic canons must have been strong. The animal in repose, that is to say not in action, was the chosen model. Once in a while however an artist breaks the bonds of classic restraint and produces new and admirable results, as in the case of the bird alighting. Another notable example may be seen in the squirrel (fig. 304) feeding on a nut that is held between the uplifted forefeet, the body lifted and supported by the hindlegs. The multiple alligator motive is painted on both sides of the body.

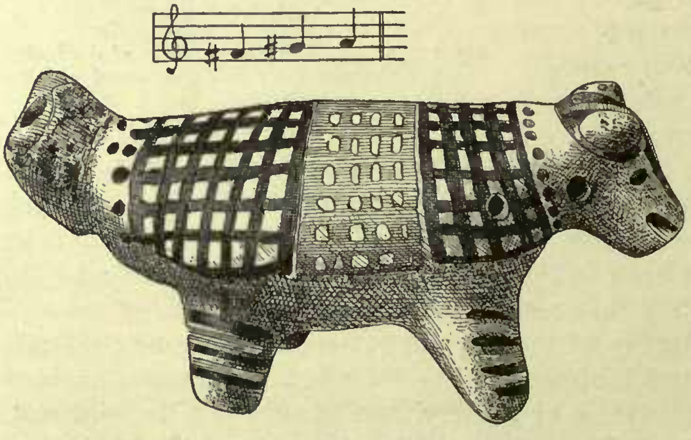

Fig. 303.—Whistle representing the armadillo. Alligator ware. 3/4

It will be seen from the accompanying staff that the tones are the same as in two of the crab-whistles (see figs. 294 and 295).

Rather infrequently, locomotion is expressed by extending the legs both forward and backward, as in figure 305, which also is evidently intended for a squirrel; but the sense of motion is not imparted to the rest of the body. The characteristic sharply recurved tail extends forward almost to the back of the head. One finger-hole is placed ventrally and the other on the left side. Attention is called to the alligator motive in the panel that covers each side. At least four species of squirrel are found in Panama.

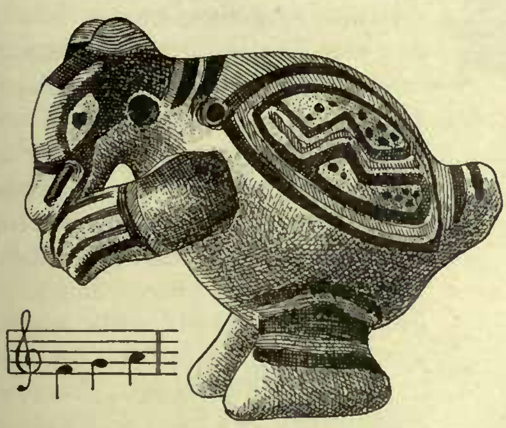

Fig. 304.—Whistle representing a squirrel feeding, the sides being decorated with the multiple alligator motive. Alligator ware. 3/4

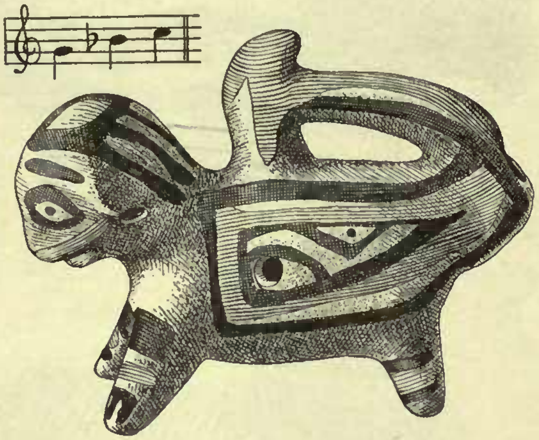

Fig. 305.—Whistle representing a squirrel in motion, the alligator motive appearing in the panels decorating the sides. Alligator ware. 3/4

An effort to avoid the stereotyped form is sometimes seen in the turning of the head, as if to look back or to one side. This is true of the striped creature reproduced in figure 306. The markings of the body suggest the ground-squirrel, while the head and mouth are more like those of the cat tribe. This instrument agrees in tone with that in figure 299. Similar longitudinal stripes are present in figure 307; but in this instance the nose and mouth are more like those of the tapir. The two finger-holes are placed on the shoulders. The tones of this whistle are the same as those in figures 300 and 305 and an octave lower than those in figure 292. There is no mistaking the intent of the one who modeled figure 308, although the end of the tapir's nose has been broken. The short lower jaw is indicated by a slit on either side. The skill in modeling is surpassed only by that in the application of the paint. With the exception of a red spot under each

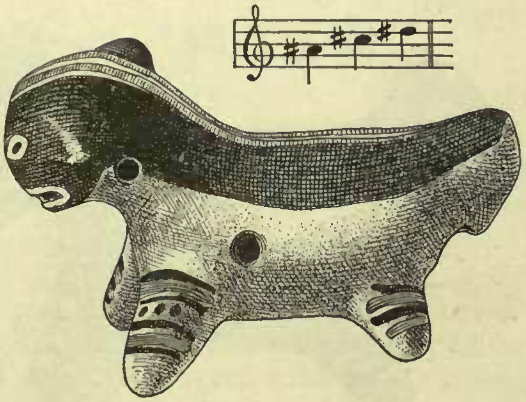

Fig. 306.—Whistle suggesting the ground-squirrel, though the head is catlike. Alligator ware. 3/4

ear, black alone is used. The series of lines on the head, back and legs are fine, clean-cut, straight and parallel. This is particularly true of the five longitudinal lines along the back that seem almost too perfect to have been done by free hand. The character of the painted decoration on this figurine may be taken as a clue to the particular species of tapir with which the ancient Chiriquian was most familiar. *Tapirus dowii*, when full-grown, is a nearly uniform blackish brown. It is said to be unspotted when young. On the other hand, *Tapirus bairdii*, when young, is irregularly marked with white spots and stripes. The whistle in question, therefore, evidently represents the young of *Tapirus bairdii.* The larger vesicular forms of the tapir (see Pl. XLIII, fig. *c* and text-fig. 245) may also be referred to the same species and to the adult stage after the coating has become a uniform color. The right foreleg forms the mouthpiece to the whistle. The two finger-holes are placed at the anal opening and on the left shoulder, respectively.

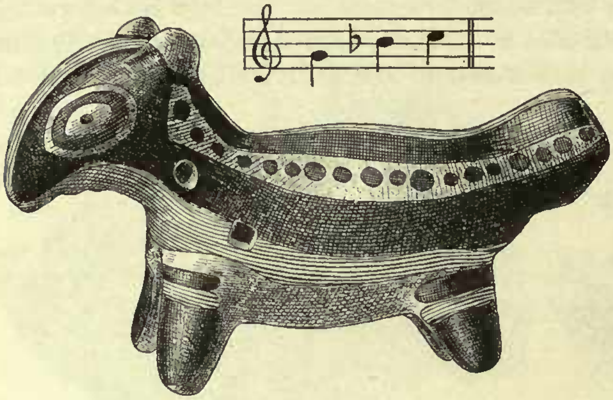

Fig. 307.—Whistle with tapir-like head. Alligator ware. $^3/_4$

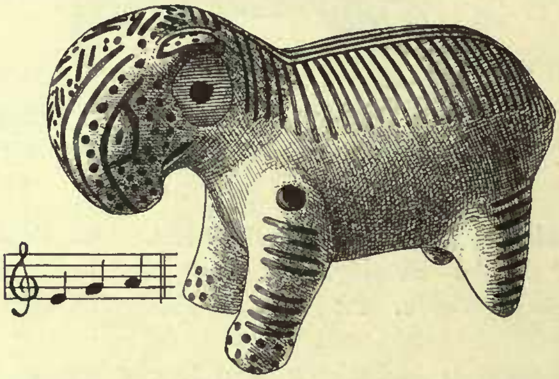

Fig. 308.—Whistle evidently representing the young of *Tapirus bairdii.* Alligator ware. $^3/_4$

A species of tiger-cat is represented in figure 309. It is apparently in motion and the attitude of the head, which is hollow and supplied with a clay pellet, adds interest to the composition. The decoration is unusually well preserved. The range from the lowest to the highest tone is much less than in the preceding whistle.

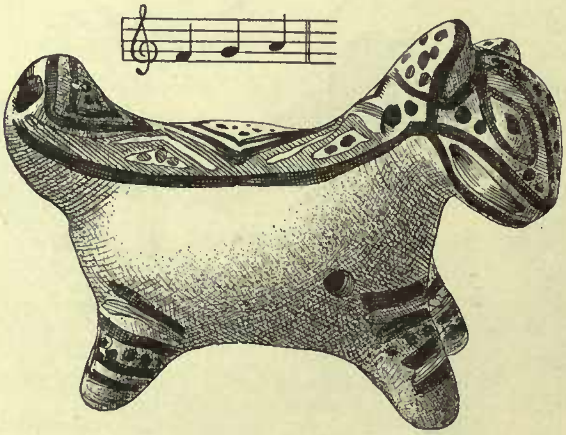

Fig. 309.—Whistle representing a species of tiger-cat, the head also serving as a rattle. Alligator ware. $^3/_4$

Peculiar interest attaches to the frequent representations of the jaguar, not only among Chiriquian whistles, but also as plastic ornaments on zoörmorphic forms of vessels (see Pl. XLI, figs. *c* and *d*; Pl. XLIII, figs. *a* and *b*; text-fig. 244). In Mexican mythology, the jaguar is intimately associated with musical instruments. It appears in the form of *Tepeyollótli*, the "Heart of the mountains," the eighth of the nine lords of the night hours.[1] Tepeyollótli is also met with as lord of the third day-count and of the third *Tonalamatl* division, where he is represented in the form of a jaguar and is explained as the "Echo in the mountains" (*el retumbo de la voz, cuando retumba en un valle de un cerro al otro*). The roar of the jaguar is thus brought into direct association with the "Echo in the mountains." In a Codex Borgia figure, Tepeyollótli blows a shell-horn. In other cases the shell is worn as a breast ornament, or is otherwise associated with the god. Tepeyollótli is also the name of the Mexican god that is combined with the drum, just as we found deities associated with some Chiriquian drum-whistles (see figs. 280, 281). Equally significant is the double-headed jaguar shown in figure 310. In each mouth, there is what might well be considered a musical instrument held to the lips by means of the forefeet. Holmes, who figured a whistle with four jaguar heads, spoke of the objects held to the mouths, as tongues. Such is not the case with the Yale specimen, because the object extends into the mouth only as far as the front teeth. Moreover, each instrument is held in place by the fingerlike toes of the forefeet. We have here therefore the counterpart of the Mexican Tepeyollótli, symbolizing the "Echo in the mountains." The two finger-holes are both on the opposite side of the figure. The tones are the same as in the preceding whistle and are full of melody. The paint near the finger-holes is much worn, evidently from use. Both necks are perforated. The ear-holes lead to the head cavities, each of which is supplied with clay pellets.

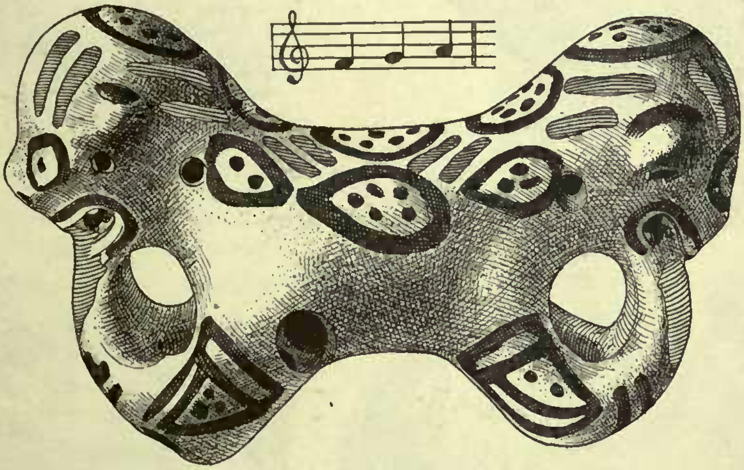

Fig. 310.—Whistle representing a double-headed jaguar, both necks being perforated, the heads serving as rattles. Alligator ware. $^3/_4$

Another smaller specimen of the jaguar, with mouth open as if uttering a cry, is shown in figure 311. No instrument therefore is necessary to suggest the "Echo in the mountains." It should be noted in this connection that the Chiriquians almost always represented the jaguar as in the act of roaring, a fact of special significance, when viewed in the light of our knowledge of the rôle played by the jaguar in Mexican and Mayan mythology. According to Dr. W. Stempell,[1] it is figured in all four of the known Mayan codices. The tail of the specimen in question is curved to one side the end touching the hip. The patterns in black and red on zoömorphic forms belonging to the alligator ware are, as a rule, either purely geometric or referable to the alligator motives rather than to the body-markings of the animal under consideration. But in these two jaguar-whistles, the markings are true to nature — rings enclosing spots. This and the following whistle are alike in pitch.

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[1] Codex Borgia; and Codex Vaticanus, no. 3773, Seler's elucidation, 103.

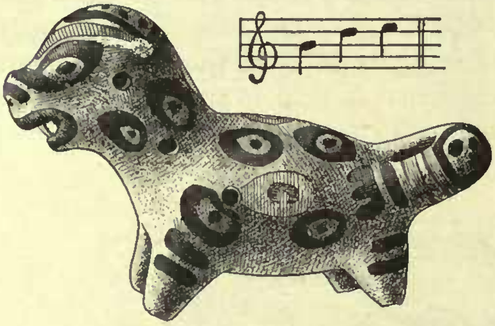

Fig. 311.—Jaguar-shaped whistle with ocellated markings of the jaguar. Alligator ware. 3/4

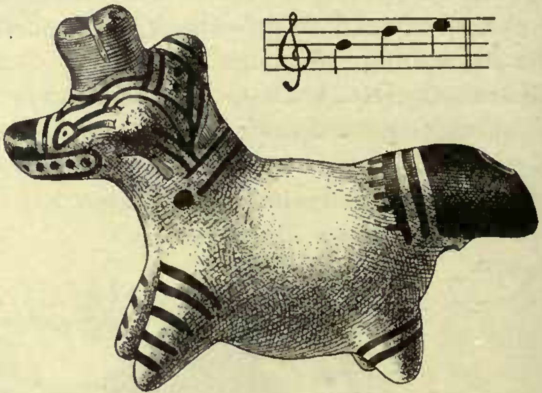

Fig. 312.—Whistle in the shape of a deer. Alligator ware. 3/4

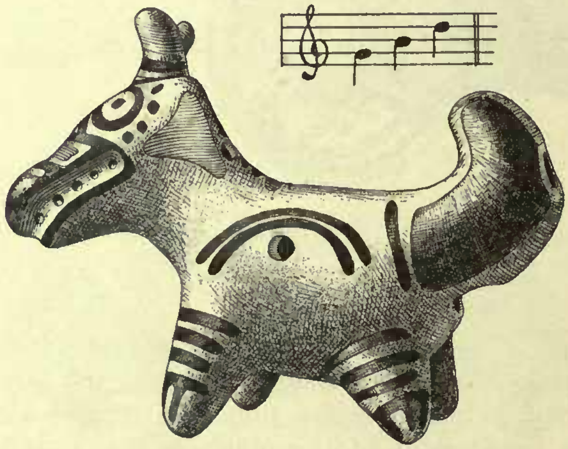

Fig. 313.—Whistle representing a deer apparently making an attack. Alligator ware. 3/4

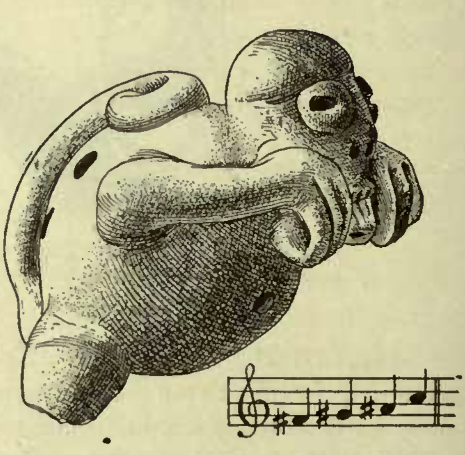

Fig. 314.—Monkey-shaped whistle with three finger-holes. 3/4

Among ruminants Seemann found the *Venado*, a species of deer, roaming in herds over the savannas. This animal is probably represented in figures 312 and 313. *Cariacus virginianus* is the species found in Panama. Special attention is given to the head in each. The teeth are rather conspicuous. In both figures one finger-hole is placed on the belly and the other on the side, the left side in the smaller of the two. The larger one seems to be making an attack, the head being turned so as to bring the horns into place. The tones of this whistle are particularly pleasing.

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[1] Die Tierbilder der Mayahandschriften. Zeitschr. f. Ethnol., XL, 704, 1908.

One of the most realistic forms is that of the monkey shown in figure 314. The paste of which it is composed is coarse and dark, the surface being covered for the most part by a red slip on which there are no delineating colors. The piece therefore does not belong to the alligator ware as is the rule for the whistles. The legs are broken. The long fingers of the two hands grasp either end of a cylindrical bar, the middle part of which is held in the mouth. The bar is perforated transversely at a median point, as if it were intended to represent a whistle. There are three finger-holes to the air-chamber; two dorsal and one ventral, so that four tones may be produced without resort to more than a partial stopping of any of the holes by means of special fingering.

Figure 315 represents an exceptionally well preserved piece. The attitude of the body is birdlike. The feet are characteristic for both bird and man or monkey. The arms are those of either man or monkey, and the head is apelike. Something resembling a fish is held in the hands. The mouth is open, revealing the teeth. There is a motive similar to this in Peruvian art — a bird holding a fish — found especially at Ica. An analogous idea is expressed in one of the gold ornaments (see Pl. XLIX, fig. *a*), where the object held to the mouth may be a fish or a conch-shell. One of the finger-holes in our specimen is ventral, the other on the left shoulder. The tones are exceedingly clear and musical. Although the painted designs are broadly similar on the two sides, there is no striving after exact bilateral symmetry in this respect. Both red and black are employed on the right side of the head and neck, while on the left side black only is used and with slight variations in the design.

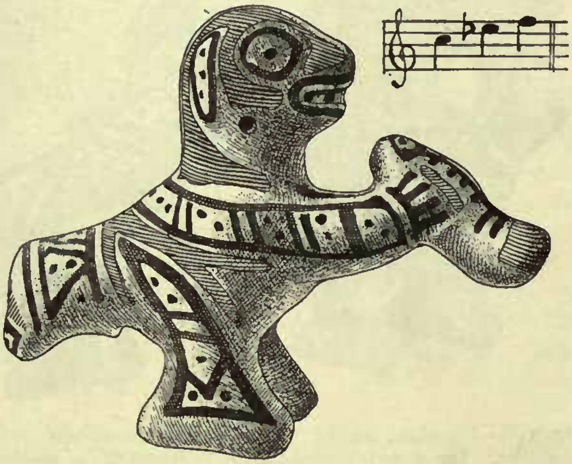

Fig. 315.—Figurine serving as a whistle and representing a mythical form with mixed attributes. Alligator ware. 3/4

Another combination of man and beast is shown in figure 316. There being no tail, the right arm is converted into a mouthpiece. One hand or something held in it is pressed to the mouth. The left arm is akimbo with the hand held against the breast near a small protuberance resembling a nipple. The two finger-holes are placed dorsally on the periphery. The back of the head and neck is marked by black lines that reach to the shoulders — the characteristic way of representing human tresses.

The form reproduced in figure 317 is presumably that of a monkey, although the pose is avian. Both arms are bent sharply backward, the right hand grasping the end of the tail and the left resting against the back. The black color is used much more extensively than the red, the latter appearing only on the throat and as three longitudinal bands on the breast. There are duplicates of this form in the collection.

One of the most interesting of the whistle figurines is a three-headed monster with human attributes (fig. 318). The central head is the largest; the others, alike in size, are situated at the angle of the shoulders. The group suggests the Peruvian pottery figurine of Tunapa placed between his two sisters. The legs are short, body long and attitude erect. The two finger-holes are in front, and the mouthpiece stands out from the back at nearly right angles. Human tresses are represented in black on all three heads, and in each of the three mouths is an object resembling a protruding tongue, or an instrument of music similar to that held in the mouths of the double-headed jaguar (see fig. 310). A multiple alligator motive encircles the common body.

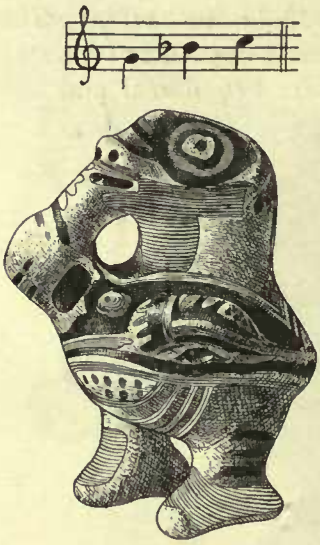
Fig. 316.—Figurine serving as a whistle. The pose is human; the right arm is converted into a mouthpiece. Alligator ware. $^{3}/_{4}$

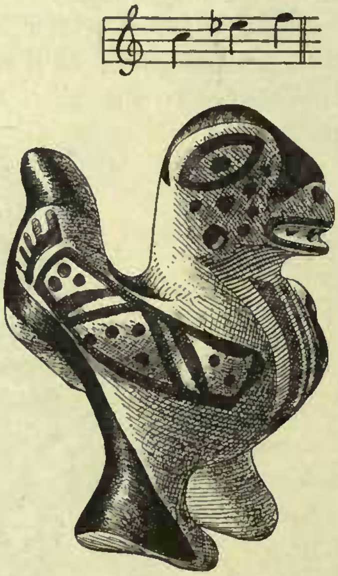
Fig. 317.—Whistle presumably representing a monkey, although the pose is avian. Alligator ware. $^{3}/_{4}$

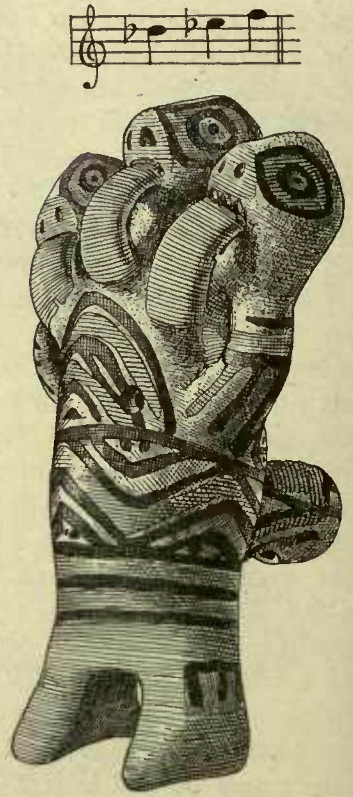
Fig. 318.—Whistle figurine representing a three-headed monster with human attributes; the multiple alligator motive encircles the body. Alligator ware. $^{3}/_{4}$

It has been already mentioned that the ancient Chiriquian artist was not very successful in his portrayal of the human form and features. Figure 319 is an exception that proves this rule. It consists of the head only, with the hair so arranged as to form a projection on the back for the mouthpiece to the whistle. One finger-hole is in front of the right ear and the other on the throat. The modeling is done with a high degree of skill and knowledge of facial topography, except that the size of the mouth is somewhat exaggerated. The lips are parted, revealing the teeth, which are closed. The region about the mouth is painted red. Alternating groups of black and red longitudinal lines cover the face from the hair down to the level of the nostrils. There is a black pattern about the eyes not unlike a pair of goggles, except that there is no connection over the bridge of the nose. The black hair is combed back and brought together forming the mouthpiece to the whistle. Strange to say, no effort was made at modeling the ears, which stand out at right angles to the sides of the head. The left ear is perforated for suspension.

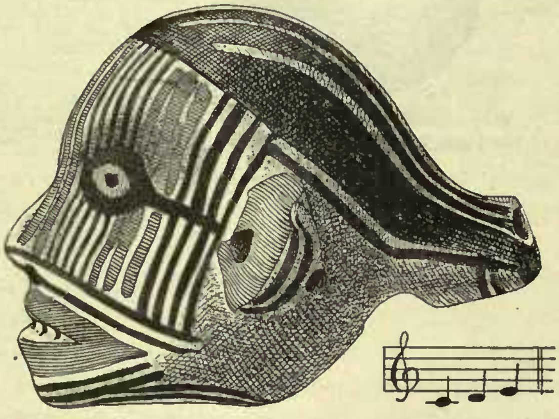

Figure 319. — Whistle representing a carefully modeled human head. Alligator ware. 3/4

In figure 320 the artist reverts once more to the primitive stereotyped form resembling the head of a rodent or of a bird almost as much as it does that of man. The mouthpiece at the back is treated as if it were the tail of an animal. One finger-hole is in front of the right ear and the other near the top of the head on the same side. As in the preceding figure, the face is marked by alternating groups of black and red lines, which in this case are wavey instead of straight. Much ingenuity was exercised in representing the eye by means of intaglio.

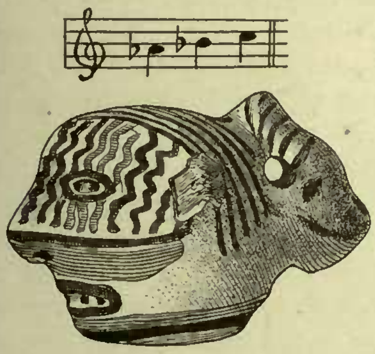

Fig. 320.—Whistle representing the human head. Alligator ware. 3/4

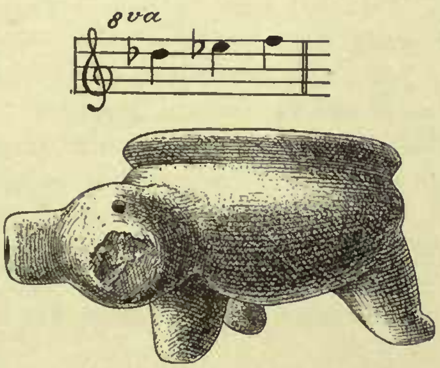

Fig. 321.—Diminutive tripod with bird-shaped whistle attached to one side. Armadillo ware. 3/4

The series of whistles ends with a diminutive tripod bowl (fig. 321), to one side of which is attached an air-chamber with mouthpiece. This whistling apparatus takes the form of a bird, the head of which has been broken off. The very small finger-holes are placed on either side of the missing head. The tones are the highest of any in the entire group of whistles, being just an octave higher than those of the instrument reproduced in figure 318. The piece, which comes from Escaria, belongs to the armadillo ware.

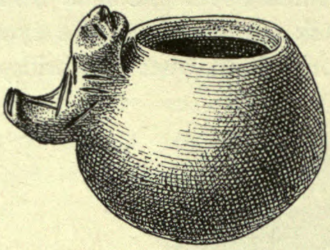

Fig. 322.—Small cup with false whistle attached to the shoulder. 3/4

A small cup (fig. 322) is described here because there is attached to its shoulder a make-believe whistle. The latter is shaped like a fish, except that head and tail are both lifted; the end of the latter is slit to resemble a mouthpiece, and near its base is another incision where the vent ought to be. This cup, the surface of which is discolored by smoke, belongs to the unpainted class of ware.

METAL.

When America was dicovered, its races were still on the threshold of the metal age. In regions favored by the presence of gold, silver, copper and their alloys, however, certain peoples had already achieved remarkable results in metal work. This is particularly true of the region extending from Mexico on the north to Peru on the south. If the thirst for geographic knowledge impelled Columbus to make his voyages of discovery, hunger for gold was the mainspring of the Spanish Conquest which followed. Barbaric wealth of gold and the barbaric point of view as to its relative value served to turn the heads of the early explorers, leading eventually to the practical extermination of the conquered and the ultimate downfall of the conquerors.

Curiously enough, Columbus saw very little of the mainland of the Western Hemisphere — only a part of the northern coast of South America, which he explored on his third voyage; and the coast of Central America from Guanaja Island, off Honduras, to a point about half-way between Colon and the Gulf of Darien, which he discovered on his fourth and last voyage. It was Columbus, therefore, who discovered Chiriqui and who was the first to observe the gold and copper ornaments worn by the natives. When on September 25th, 1502, the expedition cast anchor near the mouth of San Juan de Nicaragua, Columbus noted that some of the natives wore plates of low-grade gold (*guanin*) and others wore jewels of the same metal suspended about the neck.

The coast of Chiriqui was reached in October, the ships of Columbus entering Almirante Bay (see map) through Bocas del Toro. At a port on one of the islands in the bay, the explorers saw twenty canoes anchored. According to Acosta's[1] account, "the natives wore plates of fine gold suspended from the neck." As these were the first examples of pure gold the Spaniards had seen along that coast, they took by force from two of the natives the ornaments which the latter had refused to exchange for Spanish trinkets. The gold ornaments taken from one weighed twenty-two ducats; those taken from the other, fourteen. The inhabitants assured the Spaniards that gold was to be found at a number of localities to the south and west, one of which was called *Veragua.* This name seems to have taken a firm hold on the imagination of the explorers, becoming in their minds the synonym of wealth. Columbus called this coast *Costa de los Contrastes* and afterward *Costa Rica* and *Costa de Veragua.* A few years later the name *Castilla del Oro* was given to the entire isthmian region.

On their way eastward, after leaving Almirante Bay, the explorers entered a number of rivers, where they were generally successful in exchanging worthless trinkets for gold ornaments. At *Puerto del Retrete*, Columbus decided to return to Veragua in search of gold. Ascending the Urirá river, gold mines were found at its head waters. The explorations were extended in the direction of Bocas del Toro as far as Cateba, and netted much golden booty obtained from the Indians.

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[1] Joaquín Acosta. Compendio histórico, segunda ed., 4, Bogota, 1901.

In his explorations on the Isthmus a few years later, Vasco Nuñez de Balboa was even more successful in wresting from the native chiefs their golden treasures. From *Chiapes* he received "five hundred pounds weight of wrought gold," and from another cacique, Túmaco, "jewels of gold weighing six hundred and fourteen crowns."[1] On his return trip across the Isthmus, Balboa's net booty from three chiefs and their followers amounted to 14,000 crowns.

Seemann speaks of copper and gold being found all over Panama. He states that as long as the Spaniards retained possession of the country, the extraction of gold was carried on to some extent, certain mines being very productive. "The most important were, and still are, those of the Mineral de Veraguas. The gold is found there on the plains, and large pieces are also obtained from the beds of rivers and rivulets." The mines of Estrella in Chiriqui are mentioned as having been celebrated and as still holding a place in the traditions of the country.

J. H. Smith,[2] a contemporary of Seemann, states that tradition bears witness to the auriferous richness of the lands sloping from the volcano of Chiriqui toward Punta Burica. He locates the gold mine of Tisingal, one of the richest ever worked by the Spaniards, as being "behind the volcano of Chiriqui and among the range of the spurs of the Cordillera, forming the northern limits of Burica." According to the same author, gold is found at Guanavano, Charco Azul and in an extensive quartz formation at Las Breñas that is visited regularly by the Indians of Terrora, who grind the rock and extract the gold. This locality is on the road leading from the territory of Burica to Costa Rica.

In a recent article Mr. Charles Melville Brown[3] also discusses Tisingal. He says that somewhere on the immense slopes of the volcano of Chiriqui, probably in the district of Bugaba, "lies the lost mine of the Indians, 'Tisingal,' known to and worked by the early Spanish settlers, who changed its name to 'La Estrella.'" Brown also states that during the year 1833–'34, some old official documents relating to this mine were found in the archives at Cartago, Costa Rica. He gives a translation from one of these documents, which will throw some light on the possibilities of placer mining by the Indians of Chiriqui:

"In 1587 Don Diego de Sojo, Captain of the Guard of the Governor of Veraguas, set out from Santiago de Veraguas to explore this little-known part of the King's province, and in his report to the Governor of Veraguas he says:

The quantity of gold that abounds here is great and of good karat, as can be seen from the plates of gold the Indians beat out, it not being alloyed with other metals. The rivers abound with gold, besides there being other precious metals in all the ranges of the Province extending over an area of 20 leagues on the shores of Almirante Bay, called thus as it was discovered by Admiral Colon (Christopher Columbus); being on the very coast of Veraguas, a distance of some 15 or 20 leagues from the Escudo de Veraguas (a small island near the mouth of the Chiriqui Lagoon on the Atlantic).

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[1] Irving. Life and voyages of Christopher Columbus, III, 147, 1892.

[2] Observations on the territory of Burica, in the province of Chiriqui, Isthmus of Panama. Jour. Roy. geographic soc., XXIV, 257, 1854.

[3] Tisingal, The lost mine of Panama. Bull. Inter. bur. Amer. republics, XXX, 424, 1910.

But the greatest quantity of gold exists in the hills of Corotapa, on the shores of the same bay near the banks of the *Rio de la Estrella* (River of the Star — now supposed to be the Changuinola River), a prodigious river and the richest in the world, whose sands are of gold; defended and guarded by a bellicose nation that lives along its banks at its mouth at the place known as Horobaros . . .

And the Indians extract gold with calabashes in very large grains, and a *cacique* of the same town named Ucani works it into the said pieces . . .

From these same hills Captain Munoz, Sergeant-Major of Don Perafan de Ribera, Governor-General and Captain that he was of Costa Rica — took from the tombs of the dead, which he found one league inland from the coast, such a great quantity of gold as to swell two large chests of the kind in which shoes and nails for the cavalry are brought over from Castile. And being covetous of more treasure he started inland with 60 men he had with him, leaving the two chests buried at the foot of a ceiba tree, well locked and nailed, and started inland in search of the Indian village. But after having traversed hardly a league he was attacked by such a number of natives that some of his companions were killed, he turning and fleeing pursued by the natives to the very waters of the sea; and with difficulty did he embark in his frigate and escape, leaving his heart buried at the foot of the ceiba tree where he had left the chests of gold, and where they remain to this day."

According to Brown the search for the golden treasure of Tisingal still continues. "During the dry season of 1909 there was discovered about four days' journey from the present town of Bugaba a 'guacal' or burying ground, from which there has been taken over $25,000 worth of gold up to the present time. This 'guacal' is located in the district of Corregidor, and as many as 400 natives have been at work in it at one time. Don Antonio Anguizola, Governor of Chiriqui, has sent out a party of 20 men in search of other 'guacales,' and it is not improbable that during the present dry season others will be located . . . The gold ornaments are usually found in the bottom of the grave, arranged as though they had been on the breast of the body at the time of burial. Sometimes the ornaments are found in one of the 'cantaros' or little drinking jars, and in several graves recently opened it was found under the second slab. A few years since an Englishman in Boquete opened a grave from which he took over $2,000 worth of bullion."

In his report to Captain F. Engle, Dr. John Evans,[1] geologist of the Chiriqui Commission, states that on the tributaries of the Cricamola river several panfuls of earth were washed by one of his men, and in every instance gold was found. The aggregate value of the gold in three panfuls was about one dollar, which is considered a large yield. Cricamola is a stream that flows from the Valle Miranda northward into the Chiriqui lagoon. In other localities, Dr. Evans found ores of iron, copper and platinum. Judging from the geology of the country and the discoveries previously made, he believed it to be rich in minerals.

M. A. L. Pinart[2] believes the Guaymis who inhabit Valle Miranda to be descendants of the Indians that constructed the ancient cemeteries (huacals) found everywhere over Chiriqui, Veragua, Azuero and Coclé. They have a tradition that before the arrival of the Spaniards and even for a certain period after that event, they worked in metal — gold, copper and their alloys. The Guaymis of Valle Miranda still possess a number of ornaments in these alloys, which they claim to have inherited from their ancestors — ornaments that differ in no respect from those found in the huacals of Chiriqui. Pinart also believes that the Guaymis still bury their dead in these ancient huacals. Gabb observed similar gold ornaments in the possession of a Tiribi chief and one of his principal warriors, but was not able to ascertain whether these highly prized images had been taken from the ancient graves or handed down as heirlooms (see p. 16).

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[1] New York Herald, Dec. 8, 1860.

[2] Bull. Soc. de géog. 7^{e} sér., VI, 433, Paris, 1885.

Interest in the ancient burying-grounds of Chiriqui may be said to date from 1858, when rich discoveries of gold were made at Bugavita. While wandering through the forests in the vicinity of his cabin, a native of Bugavita, in the district of Boqueron, encountered a tree that had been uprooted by a recent tempest, revealing a small earthen vessel. "Upon examination this proved to contain, wrapped in a swathing of half-decayed cloth, divers images of curious and fantastic shape, and of so yellow and shining a metal that he at once suspected them to be of gold."[1] Authors differ as to the details of the discovery. Dr. Otis says it occurred in June and that in less than a fortnight over a thousand people were at work, having dug up 225 pounds weight of images, most of which proved to be of the finest gold. According to the report of Dr. J. King Merritt,[2] who was director of a gold mine in Veragua, it was in the autumn of 1858, while gathering their crop of corn, that two Spanish creole farmers, Ignacio Guerra and Victorio Pitti, "accidentally discovered a golden image, which had been exposed by the uprooting of a plant. They cautiously and secretly made farther search by sinking a pit at this point, and were successful in obtaining more. With this encouragement they determined to explore the Huacal, the existence of which had been well known for years. They proceeded in this work, not continuously, but as circumstances would permit, until the first of May, 1859, when their concealed operations became known to the inhabitants of the vicinity. The consequence was that by the middle of May more than a thousand persons were engaged in ransacking the graves of this Huacal." This cemetery covered an area of only twelve acres. According to Thomas Francis Meagher, the discoverer of the golden relics was Don Roberto Soes.[3] It is estimated by Dr. Merritt that the metallic value of the images found at Bugavita alone amounted to $50,000. C. W. Lüders[4] estimated their value at nearly a million dollars. The largest gold figurine of a high degree of purity found here is said to have weighed between eleven and twelve ounces. Much of the pottery illustrated in this work came from Bugavita.

The major part of these gold images from Bugavita is said to have been melted at Panama for their bullion value. Of those that were brought to the United States only a few found their way into museums; the plaque and the vampire

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[1] F. M. Otis, M. D., in Harper's weekly, Aug. 6th, 1859.

[2] Report on the huacals, or ancient graveyards of Chiriqui. Publ. by Amer. ethnol. soc. previous to vol. I of its Bulletins.

[3] The new route through Chiriqui. Harper's mag., XXII, 198, 1861.

[4] Jahrbuch der Hamburgischen wiss. Anstalten, VI, 22, 1888.

(see fig. 352) at the Lenox Library, New York, probably being two of the rare and fortunate exceptions. What became of the gold ornaments to the value of $70,000, exhibited at a meeting of the American Ethnological Society, is not known.[1] The part that was sent to London has not been traced. Much of it presumably was consigned to the melting pot. A few specimens are preserved in the Hamburg Museum. It is highly probable that some of the pieces in the Yale collection and in that of Mr. George G. Heye formed a part of the Bugavita treasure. This is also true of the nine specimens exhibited by Mr. Alfred B. Taylor, at a meeting of the Numismatic and Antiquarian Society of Philadelphia, October 5th, 1865, but their present whereabouts is unknown. Chiriquian gold ornaments are rare in European museums with the possible exception of that at Madrid, which I have not yet seen.

Although the discoveries of 1858–59 attracted the attention of the world to the archeological possibilities of Chiriqui, it does not follow that the presence of gold ornaments in Chiriquian graves had been entirely unknown prior to that time. Squier, the well-known archeologist, is authority for the statement that "large quantities have been taken from time to time for many years past; and I was informed by the late Governor of the Bank of England, that several thousand pounds worth were annually remitted from the Isthmus as bullion, to that establishment." It is to be deplored that some of these ornaments did not go to the British Museum instead, where the collection of isthmian gold figurines is still quite small; under the wise management of Mr. C. H. Read however it is being increased as opportunity offers. In 1907 Mr. Read purchased a splendid specimen, the metal value of which is £25. It consists of a group of eight figurines set in a rectangular panel, the dimensions of the panel being 9.5 by 6 centimeters. The motive and workmanship are similar to those of the much smaller piece reproduced in Plate XLIX (fig. *a*).

In a given huacal the number of graves containing gold is small in comparison with the total number. Some of the more elaborately constructed graves are said to contain nothing at all. Those in which metal objects are found are usually rich in pottery and stone implements. Dr. Merritt describes two kinds of graves found at Bugavita, the oval and the quadrangular (see pp. 9 and 10). The oval grave-pits were lined with rounded river stone. This type occurred principally in the northern and western sections of the burial-ground; "and as a general rule yielded the most figures of gold and the finest specimens of pottery." It is said that some of the gold figures were located in the crevices of the wall, "but in no instance in earthen jars associated with them." The latter statement conflicts with that of Dr. Otis, previously cited.

There were two distinct types of the quadrangular grave. The lining of one kind was of rounded river stone resembling in this respect the oval graves. They were also in juxtaposition to the latter and like them in yielding more gold images and finer pottery than the second type of quadrangular grave. This variety, "although poor in relics, was more artistically and carefully constructed, and in a better state of preservation." The walls of the vault were lined with flat stones set upright. The cover of the vault was also composed of flat stones carefully fitted.

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[1] Hist. mag., IX, 158, 1865.

Pinart's description of the graves and the disposition of the gold objects differs somewhat from the foregoing (see p. 12). He speaks of certain graves with walls made of flat slabs set upright; and the cover, a great stone slab. In these the pottery and stone objects were found toward the center, while the human bones were placed without apparent order along the walls, the gold, if there was any, always being with the bones. The other type mentioned by Pinart consisted of a more rudely constructed vault, into the walls of which were built recesses or niches, each one lined with and covered by flat slabs of stone. Here the pottery and stone objects were placed in the vault, and the gold in the niches.

The gold images of Chiriqui are a source of wonder and admiration to every beholder. A careful study of them serves to throw new light on the mythology and artistic skill of the ancient race, without lessening appreciably the mystery that envelopes the methods they employed in order to arrive at such splendid results. For the most part, they seem to have used alloys of gold with copper, ranging practically from pure gold on the one hand to pure copper on the other. A small percentage of silver is present in some specimens, one being the large figure of a parrot illustrated in figure 353. Dr. C. H. Mathewson of the Hammond Metallurgical Laboratory at Yale analyzed two of the specimens illustrated in this work (see Pl. XLIX, fig. *g* and text-fig. 370) and found them to be nearly pure gold, the only alloy being copper. The alloys often appear to be natural. In some cases, very effective figurines were produced by only slight alterations in the shape of nuggets or masses of the native metal (see figs. 363 and 364). A great majority of the pieces however were cast, either wholly or in part. Some are constructed from a number of separate castings which were afterwards welded together. Others are cast as a unit, certain parts of which — as tail, wings or feet — being altered later by hammering. This class includes perhaps the largest number of specimens. The accessible surfaces, especially those on the half intended to be seen, are carefully burnished. On the opposite half however hammer marks are often distinctly visible. The subspherical pestle illustrated in figure 33 could have been used both as hammer and burnisher. Its surfaces are streaked with gold that in places is driven into the grain of the rock.

The gold seems to be concentrated on the surfaces, forming a layer of brighter yellow than the interior. This is true even where there is but little alloy. Sometimes this outer coating is but little more than a superficial bloom. When susceptible of measurement, it is found to be thicker in some places than in others. A possible explanation of this rich coating may be found in a statement by Acosta to the effect that the Indians of Santa Marta, on the north coast of Colombia, "had much gold and copper, also gilt copper — and the copper was gilt by the use of the juice of a plant rubbed over it, then put into the fire, when it took the gold color." Oviedo, "surveyor of the melting shops of King Ferdinand" and Charles V, was the first to mention this process, Eden's translation[1] of his words being as follows:

"And forasmuche as I haue spoken of golde, I haue thought good to declare sumewhat howe the Indians can very excellently gylte suche vesselles of copper and base gold as they make. For they can gyue them so fayre and floryshynge a coloure, that all the masse whiche they gylte, appearethe as though it were golde of .xxii. caractes and better. This colour they gyue with a certeyne herbe as thoughe it were wrought by the arte of any goldesmyth of Spayne or Italie, and wold of them be esteemed as a thynge of greate ryches, and a secreate maner of gyldynge." As far as the laws of metallurgy are concerned, this statement can be considered worthy of entire credence.

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[1] The first three English books on America; from the Latin of Peter Martyr of Anghiera; ed. by Edward Arber, 213, Birmingham, 1885.

Another possible method of producing similar results would be to coat the wax or resin model with gold before it was encased in the mold. In melting the model, the gold would adhere as a shell to the interior of the mold, which could then be filled with alloy. On removing the mold and burnishing the surface, the process would be complete. This is the suggestion of Dr. George F. Kunz.

There are several specimens in the Yale Collection (see fig. 342) with a foundation of metal apparently devoid of gold, over which is laid sheet gold, giving the exact appearance of being plated. As the base metal underneath decays, the gold comes off in scales.

The precise nature of the molds employed in casting is still a mystery, no specimens or even fragments of them having been preserved. Sand or clay might have been used. Modern goldsmiths make use of cuttlefish bone in casting small objects not more than five by ten centimeters in dimensions. It requires two for the halves of the mold, and they give a comparatively smooth surface to the casting. The cuttlefish is said to be found in Chiriquian waters. The sand box either undivided or in halves might have been in use. The character of some unburnished surfaces suggests sand casting. One fine large figure of the alligator-god (see Pl. XLVIII, fig. *g*) seems to have been cast as one piece in a sand box of two halves, because of the impression left by a short rod inserted in order to produce the opening in the ring at the back. The same results could not have been secured by an undivided mold. In order to save metal and reduce the weight of the figurines, the latter were cast hollow, the figure being open for all or part of its length either on the dorsal or ventral aspect, but always on the one not intended to be seen. The frequent crystallization of the gold on the hollow surfaces, and other superficial characters indicate that resin or a similar substance must have been employed as a filling. Mr. Minor C. Keith possesses an interesting figurine from Rio General, near Terraba, Costa Rica, in the hollow head of which the resin plug is still retained (see fig. 375).

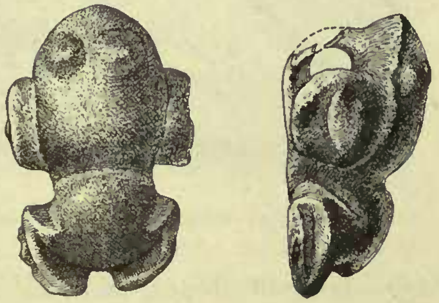
Fig. 323.—Figure of a frog, carved in resin; from Divala. Lamson collection. 1/1

The Lamson collection includes a frog carved out of resin, which is mentioned here because of its probable bearing on the art of casting in metal (fig. 323). The ring on the throat for suspension is partially broken away; the feet, which were presumably flattened, are lacking. We evidently have to do here with the metallic type of frog. The resin where freshly broken is of a rich reddish color and the piece is perfectly translucent, even in its thickest parts, resembling in this respect the familiar commercial rosin, only of a finer quality and different smell when burning. The image came from Divala.

Sir Walter Raleigh[1] gives an interesting account of primitive metallurgy as practised by the Indians of Guiana in 1595: "I after asked the maner how the Epuremei wrought those plates of golde, and howe they could melt it out of the stone; hee tolde mee that the most of the golde which they made in plates and images, was not severed from the stone, but that on the lake of Manoa, and in a multitude of other rivers they gathered it in graines of perfect gold and in peeces as bigge as small stones, and that they put it to a part of copper otherwise they could not worke it, and that they used a great earthern pot with holes round about it, and when they had mingled the gold and copper together, they fastened canes to the holes, and so with the breath of men they increased the fire till the metall ran, & then they cast it into moulds of stone and clay, and so make those plates and images."

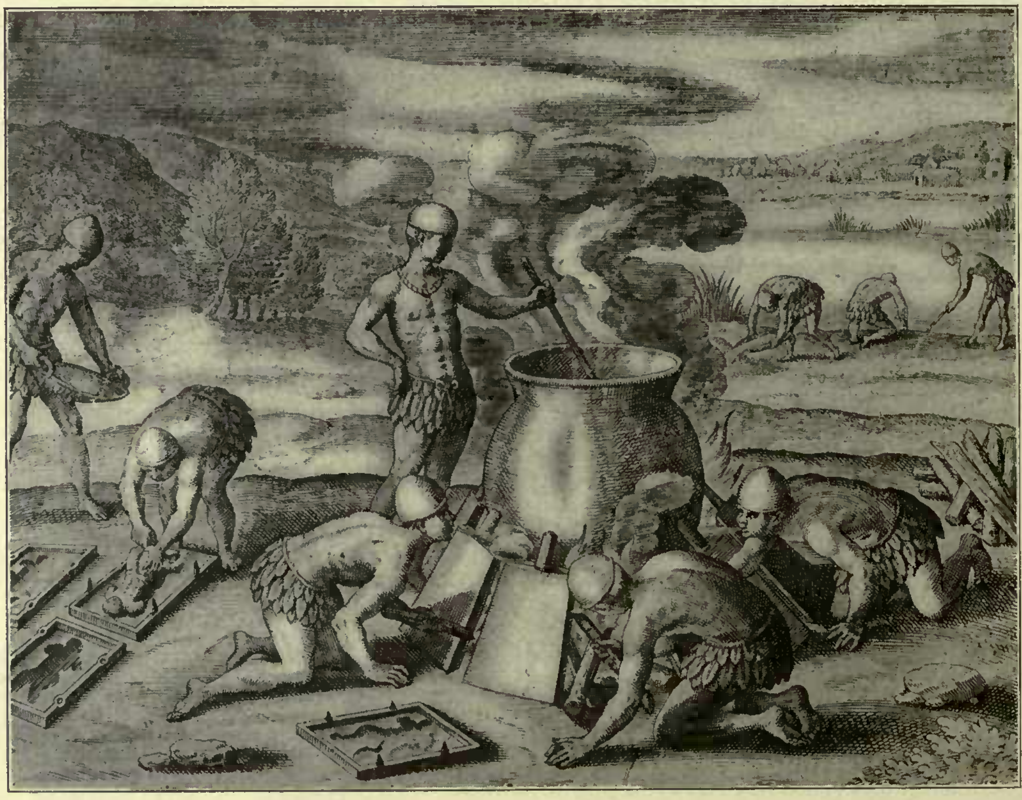

Fig. 324.—Illustration showing primitive process of casting gold images. (After de Bry.)

De Bry's illustration showing how the natives of Guiana cast their gold images is reproduced in figure 324. Judging from the text accompanying his figure, the latter may have been inspired by the above narrative of one of Raleigh's men. The dates of these two accounts would not necessarily conflict with such a view. De Bry's text is as follows:

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[1] Richard Hakluyt. The principal navigations, voyages, traffiques & discoveries of the English nation, etc. Reprint of 2d ed., X, 414, 415, 1904.

"Incolæ regni Guiana statuas & imagines suas, plerumque ex paruis auri granulis fundunt, quæ in quodam lacu, non procul a regia ciuitate Manoa, & in aliis fluminibus, quæ sese in lacum istum exonerant, colligunt. Ad grana ista aurea paululum æris assumunt, ut aurũ tractari facilius possit, & postea vasi alicui fictili includunt, quod multa habet foramina, ad quæ fistulæ quædã siue calami aptantur, ita ut in typos promineant, qui ad ignem sub vase isto in hunc usum collocati sunt, ut aurum habitu oris liquefactum & ex vase fictili promanans excipiant."[1]

The fact that an alloy of gold and copper fuses at a lower temperature than either metal alone accounts in part at least for the prevalent use of the alloy among the natives of America. That they were able however to cast pure copper and probably copper alloyed with tin, which has a higher melting point than gold, is attested by the existence of figurines of that metal.

In describing and illustrating gold ornaments, great caution has been exercised in eliminating all pieces, the authenticity of which could be questioned. In the early days, collectors often had difficulty in disposing of originals at little if any more than their bullion value. Now that the demand is great and the supply small, they often command two and three times the gold value. Nearly all the specimens here figured were collected thirty to forty years ago, which fact of itself creates a strong presumption in favor of their being genuine. In case of more recent acquisitions, reliance is placed largely on a thorough comparison with pieces that are undoubtedly authentic. I have spent months in searching for criteria, by means of which even the most skilful frauds might be detected, but am not yet prepared to announce complete success.

Fig. 325.—Needle of nearly pure copper. 1/1

The number of metal objects in which gold plays no part is relatively small. These are presumably either nearly pure copper or bronze. Among them may be mentioned a needle (fig. 325), the eye of which is produced by slitting one end, spreading the halves apart and then bringing their tips together. The needle is perfectly round and of uniform diameter except in the region of the tapering point.

Toilet articles are represented by bronze or copper tweezers, evidently intended for plucking out hair or beard. Similar ones have been found in Peru. Squier speaks of finding a pair of bronze tweezers suspended by a thread around the neck of a mummified fisherman from a tomb at Pachacamac. The specimen reproduced in figure 326 is perforated for suspension. One of the arms is broken off. The type is more refined than that figured by Squier.

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[1] J. T. and J. I. de Bry. Collectiones peregrinationum in Indiam orientalem et Indiam occidentalem, part VIII, pl. XVII, Francofurti ad Moenum, 1599.

The ancient Chiriquians were very fond of rattles. It is not surprising that some of these should have taken the form of the common sleigh-bell of the north. The simplest form consists of a hollow globular body slit underneath and provided with a loop at the top and a relatively large metal pellet within. It seems to be genetically related to the bell-shaped projecting eyes of the frog (see Pl. XLVIII, fig. *b*, and text-fig. 347). These bells are made of copper washed with gold, also of practically pure gold. A tiny example in copper[1] is given in figure 327. This simple type may be varied so as to represent the human head, as shown in figure 328, a specimen belonging to Dr. Wm. J. Lamson of Summit, N. J. The relatively large pellet inside resembles a dropping of copper. The prominent ears are represented by coils of wire. A similar (bronze) bell from the Stearns collection was figured by Holmes. In both cases the human features are inverted when the bell is suspended from its loop. The jaguar's head is also employed as a bell, one of this kind from Rio General, Costa Rica, having recently been obtained by Mr. Minor C. Keith.

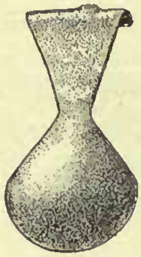

Fig. 326.

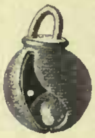

Fig. 327.

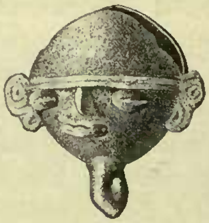

Fig. 328.

Fig. 326.—Copper tweezers perforated for suspension. ¹/₁
Fig. 327.—Small copper bell fashioned like the modern sleigh-bell. ¹/₁
Fig. 328.—Base metal bell representing the human head. Lamson collection. ¹/₁

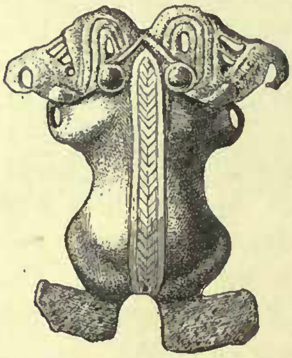

Fig. 329.—Base metal casting representing a frog, the head of which is adorned with two conventionalized alligator heads. Lamson collection. ¹/₁

The most remarkable of the base metal figurines belongs to Dr. Lamson and is reproduced in figure 329. It represents a frog and is fashioned with much skill, the whole being cast. The exaggerated flattening of the hind-feet is due in part to hammering and is almost constant among the metal figurines of the frog. Its significance will be noted later. The forefeet are plain rings for suspension. The ancient Chiriquians were not always satisfied with the realistic representation of the animal form as a complete and single zoömorphic unit. They sometimes combined parts of distinctly different animals into one. More often they would ornament an otherwise complete animal figure with motives derived from a wholly different kind of animal or from parts thereof. Such is the case here, where the frog's head is decorated with two conventionalized alligator heads, each recognized by an eye, upper jaw with recurved snout and lower jaw, the latter in each case being curved downward and backward to fuse with the nose of the frog, on each side of the median line. The thinness of the casting and the delicacy of form and finish lead one to conclude that base alloys were highly prized by the ancient Chiriquians; this belief is strengthened by the fact that objects of this class average quite as small as those of gold, every part suggesting economy in the use of the alloy.

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[1] Dr. Mathewson finds that this specimen contains 20 per cent gold and a trace of silver.

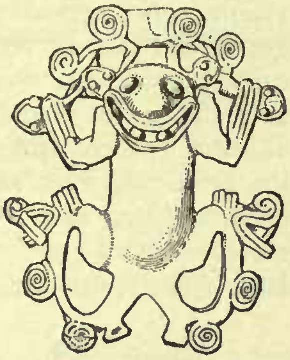

Fig. 330.—Figurine in base metal, to each knee of which is attached a conventionalized alligator head. (AfterHolmes.)

The use of the conventionalized alligator or alligator head as a decorative and perhaps symbolic motive on metal figurines does not seem to have been detected by previous writers. Bollaert,[1] for example, reproduces a gold figurine (see fig. 365) that has a human body and an alligator head. He not only did not recognize the head as being that of an alligator, but also did not see the three additional diagrammatic alligator heads and bodies that are woven into the setting of the central figure. A subsequent writer copied this illustration, calling it simply a "grotesque human figure in gold, from Bollaert." He also reproduced two other specimens[2] in which the alligator-head motive is used, but apparently did not recognize it. In one instance (fig. 330) this motive is attached to the knees of a "quadruped with grotesque face;" and in the other (fig. 331), it is repeated on each side of the head of what Holmes thinks may be a crayfish "with complicated yet graceful antenna-like appendages, made of wire neatly coiled and welded together by pressure or hammering." Lüders differs from Holmes as to the meaning of

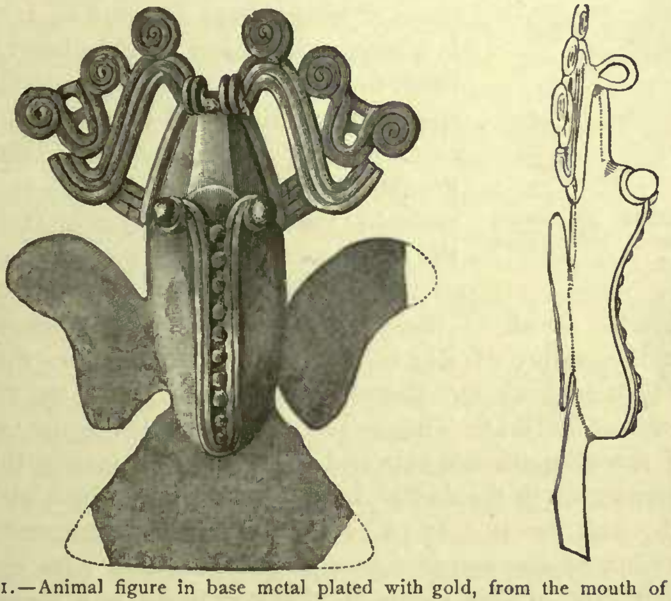

Fig. 331.—Animal figure in base metal plated with gold, from the mouth of which project two conventionalized alligators. (After Holmes.)

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[1] William Bollaert. Antiquarian, ethnol. and other researches in New Granada, 32, fig. 3, 1860.

[2] Ancient art of the province of Chiriqui, Sixth ann. rept. Bur. ethnol., figs. 35, 40, 1884–'85.

this figurine, insisting that it is not a crayfish but a cuttlefish (*Tinten-fisch*). I differ from both these writers and believe it to be a composite figure, with alligator head and body and bird wings and tail. Two pairs of the "antenna" coils represent the curling ends of alligator jaws, between which the teeth are plainly visible, the lower as well as the upper jaw being coiled on itself. These are alligator-head motives very much conventionalized. Each is attached to what Holmes calls an antenna, which in fact is a conventionalized alligator body projecting from the mouth of the figurine. The avian characters are perfectly distinct. The alligator is recognizable in the longitudinal raised lines and nodes on the back, the projecting eyes and sudden rise of the naso-frontal region, the curve of the back, and long muzzle surmounted by a suspension ring that takes the place of the recurved snout (see profile). Had it not been thought necessary to emphasize the latter feature, this ring would have been placed ventrally, where, if intended only as a means for suspension, it rightfully belongs. Subsequent illustrations will bear me out in these conclusions. Figures with mixed attributes were the favorites, whether intended for ornamental or ceremonial purposes.

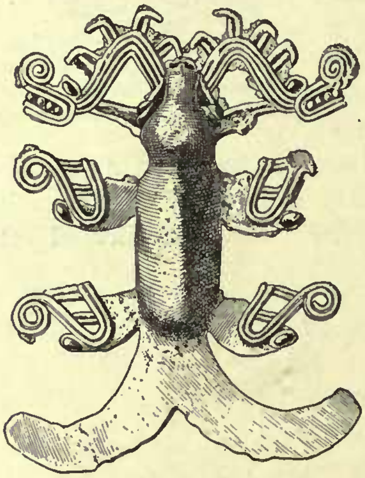

Fig. 332.—Gold figurine ornamented with alligator motives. Metropolitan Museum, New York. $^{3}/_{4}$

A gold figurine in the Metropolitan Museum (fig. 332) belongs to the same class. The figure as a whole, like the preceding, is a conventionalized alligator. The tail however is forked, and in place of wings there are four legs, each terminating in a conventionalized alligator head instead of a foot. From the mouth protrude two alligators, their dorsal spines resembling bird beaks. The heads of these two alligators are highly characteristic, except that the teeth are represented by pellets. The two bodies resemble the Mexican feather-snake, as illustrated in the ancient codices. The prominence in the region of the eye is very marked in all six of these conventionalized heads. Both of these figurines should be compared with three specimens from the valley of Rio General, Costa Rica, two of which form part of a collection (gift of Frau Dr. Mertens) recently acquired by the Royal Ethnographical Museum of Berlin.[1] The larger one resembles figure 331, except that the hindlegs of the alligator are retained, the wings replacing the forelegs only. The other is comparable to figure 332, but no conventionalized alligators protrude from the mouth; and the two forks of the tail are differentiated into alligators, which, like the back of the parent figure, are ornamented with spines and scales. The most perfect link in this chain of alligator forms is a specimen (also from Rio General) in the Keith collection — a realistic alligator with two conventionalized alligators protruding from the mouth and two other similar ones taking the place of the tail. The parent figure and the four attached to it are all decorated with raised spine- and scale-motives. The piece in the Metropolitan Museum is classed as one of fourteen Mexican antiquities, the gift in 1896 of Mr. Audinet Gibert. If found in Mexico it was evidently an importation from the south, since it fits so perfectly into the series from Chiriqui and the adjoining district in Costa Rica, and belongs to the Central American type of goldsmith's art.

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[1] E. Seler. Zeitschr. f. Ethnol., XLI, Taf. VI (bottom row at the center), 1909.

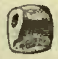


Fig. 333.

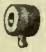


Fig. 334.

Fig. 335.

Fig. 336.

Fig. 337.

Fig. 338.

Fig. 333.—Bead evidently made from a gold nugget. 1/1
Fig. 334.—Gold bead. 1/1
Fig. 335.—Cylindrical bead made of sheet gold. 1/1
Fig. 336–338.—Cylindrical gold beads. 1/1

In the Yale collections there are a number of gold beads of various shapes and sizes (figs. 333–338). Some of them are evidently cast; others are irregular in shape, and seem to have been made of gold nuggets. One bead is made of sheet gold rolled into the form of a cylinder. Three cylindrical beads are reproduced, on which the enlargements at the ends seem to be a part of the casting rather than fillets applied subsequently.

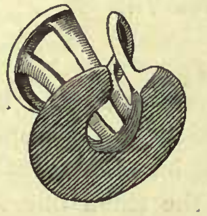


Fig. 339.

A small gold object (fig. 339) in the possession of Mr. George G. Heye was apparently intended to be worn as a labret or perhaps earring, and hence belongs in the general class of articles of personal adornment. There is a similar but larger specimen in the British Museum, which has, in place of the four horizontal slits, four rows of horizontally arranged triangular perforations. Most of the gold objects described here however are evidently for ceremonial purposes as well as for adornment. A much more elaborate example than either of the foregoing was reproduced by Herr Lüders as part of the celebrated Bugavita treasure.

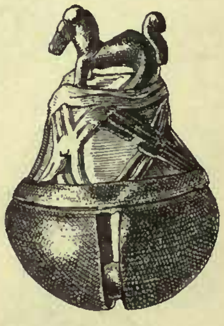


Fig. 340.

Fig. 339.—Gold ornament, to be worn as a labret or earring. Heye collection. 1/1
Fig. 340.—Fine gold bell surmounted by an animal form; the pellet inside is a nugget of gold. 1/1

The gold bell illustrated in figure 340 is one of the gems of the Yale collection. It is surmounted by an animal form. The upper story, which is shaped like a church bell, is ornamented at the top and bottom by raised horizontal bands. Between these are groups of bands forming x-shaped figures. These features in relief appear to have been cast with the body of the bell, the lower half of which is hemispherical and slit vertically. The pellet inside is a gold nugget. The entire piece is of fine gold.

Among the rare animal forms represented in gold may be mentioned the fish and the crayfish. Examples of these were illustrated in an article by F. M. Otis in Harper's Weekly. I have been unable to trace the originals; but have found in the Metropolitan Museum, New York, a fish (fig. 341) similar in type to the ones figured by Otis. According to the

Museum records it came from a Chiriquian tomb, having been collected in 1859 by Mr. D. M. Corwing, while on a trip to Panama. It was afterwards given to the Museum by Mr. Meredith Howland.

Representations of Cervidæ are also rare. A specimen belonging to the Heye collection is shown in figure 342. The neck and body are hollow, the latter being open ventrally. It is of base metal coated with a thin layer of low-grade gold, which has disappeared from parts of the legs on account of the disintegration of the baser foundation. The only gold figurine of the armadillo that I have seen is the small one also belonging to Mr. Heye (fig. 343).

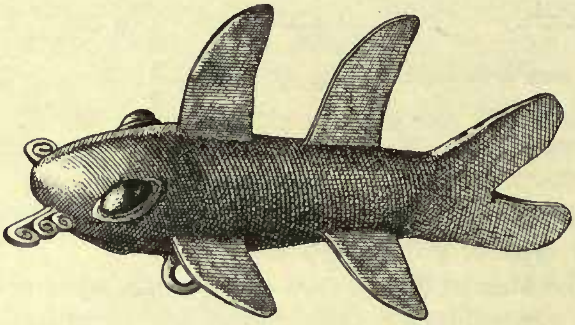


Fig. 341.—Gold figurine of a fish. Metropolitan Museum, New York. 3/4

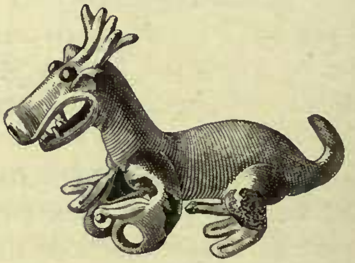


Fig. 342.—Figurine of a deer, in base metal plated with low-grade gold. Heye collection. 1/1

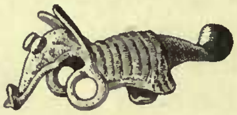
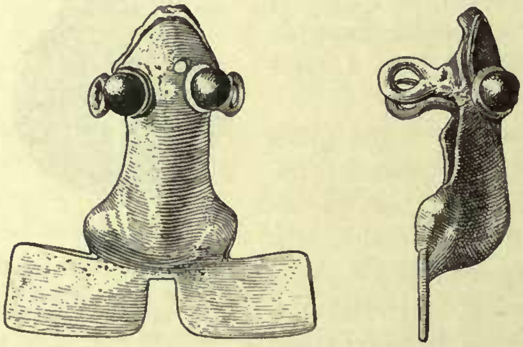


Fig. 343.



a *b*

Fig. 344.

Fig. 343.—Small gold figurine of the armadillo. Heye collection. 1/1

Fig. 344.—Gold figurine of a frog; *a*.—dorsal view, *b*.—profile view. 1/1

The frog was a favorite with both potter and goldsmith of ancient Chiriqui. Those fashioned out of metal were almost universally identical in type, especially in regard to the flattening of the hindfeet, as seen in figure 344. The suggestion may have come originally from the webfoot of the frog, but other reasons must be sought to explain why it should be characteristic of the metal frog only. Gold is precious and of an attractive color. The attractiveness and apparent size of the figure can be almost doubled by the flattening of the hindfeet. As there are always rings for suspension, usually in the forefeet or between them, these objects were evidently worn as charms or ornaments. The flattening of the hindfeet would help to steady the figurine and keep it from rolling as the wearer moved. The clay frogs, on the other hand, being merely ornamental and symbolic features on vases and being made of a common and non-precious material, there was no occasion to flatten the extremities. Moreover flattening suggests hammering, which plays no part in ceramic technique, but which does belong to metal technique. It is interesting to note therefore where the metal technique (or rather the effects of it) has been borrowed by the potter (see Pl. XIV, figs. *b*, *c* and *d*).

A figurine of two frogs united by the fusion of two adjacent hindfeet and also by a tiny rod connecting the heads, is shown in figure 345. Here all the forefeet are simple rings for suspension. The group was cast in base metal, then entirely covered by a thin layer of gold, which has been removed in places from the edges by flaking or by the disintegration of the base metal. This specimen is from El Banco, Mount Chiriqui. In figure 346, the two frogs are united by two bands of twisted wire, which may have been cast separately from the frogs themselves. The rings that take the place of the two adjacent forelegs are very much worn by the thread from which the group was once suspended.

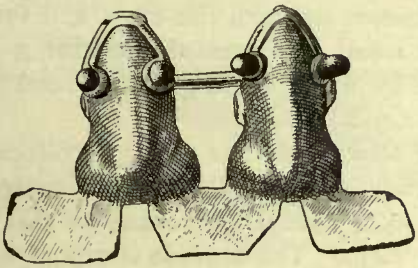


Fig. 345.—Two united images of the frog in base metal plated with gold; from El Banco. ¹/₁

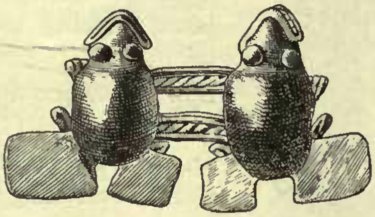


Fig. 346.—Two gold figurines of the frog united by bands of twisted wire. ¹/₁

Two of the gold figurines of frogs are reproduced in color (Pl. XLVIII, figs. *a* and *b*). The head of the smaller of these (fig. *a*) is ornamented with what appear to be two gold wires, each coiled on itself at both ends, a stylistic way of representing the snake's head (see fig. *f* and text-fig. 354). The coils however are not visible from the ventral surface and were evidently cast with the rest as one piece. The larger specimen (fig. *b*) has large eyes in the shape of sleigh-bells, each supplied with a small ball of metal, apparently of copper or a low-grade alloy of copper and gold. This is without doubt the frog mentioned by Bollaert,[1] as it agrees with his description even to color and weight.

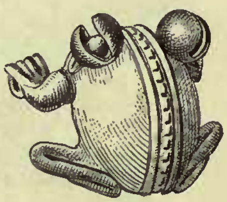


Fig. 347.—Gold image of a frog; ceramic type. ¹/₁

All the foregoing may be said to belong to the metallic type of frog. An exception that proves the rule is seen in figure 347, which is a ceramic type of frog (compare with fig. 100). The body is short and high and there is no flattening of the hindfeet. The eyes in this case are also prominent and bell-like. The ancient American bell may have been derived from such a rendering of the animal eye.

In the Meredith Howland collection at the Metropolitan Museum, there is a gold frog which like the preceding has not the flattened hindfeet (fig. 348). It is a fine specimen with a nose decoration of spirals, a herring-bone pattern down the back, and eyes resembling foot symbols. On the bottom of each forefoot there is a ring for suspension. The Museum possesses another small gold figurine of a frog of the type figured by Bollaert,[1] and probably the identical specimen.

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[1] Op. cit., 31 and 32.

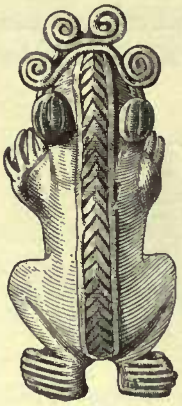

Fig. 348.—Gold image of a frog. Metropolitan Museum, New York. $^3/_4$

Figurines of the alligator are not so numerous as those of the frog. One of the simplified forms is reproduced in figure 349. This specimen, which was purchased from de Zeltner, was called in his catalogue "une sorte de poisson"; but it is an alligator, as indicated by the prominence between the eyes, and the long jaws showing teeth. The usual characteristic recurving of the snout is represented here by a simple ring at the end of the upper jaw (compare with fig. 331).

Mr. George G. Heye of New York has a large collection of ancient Chiriquian gold ornaments, among them the representation of an alligator (fig. 350). Mr. Utley obtained this interesting specimen at Pueblo Viejo. The attitude is one of motion; spreading legs, head raised and tail curved to one side. A single row of long spines reaches from between the eyes to near the tip of the tail. Under each forefoot there is a ring for suspension. The prominence between the eyes and the upturned snout are both characteristic. It holds in its mouth a part of a human leg (from the knee down). The latter is recognized as human by the flat foot and ankle-band. The crab-god reproduced in color (see Pl. XLVIII, fig. *h*) also holds in its mouth the lower half of a human leg.

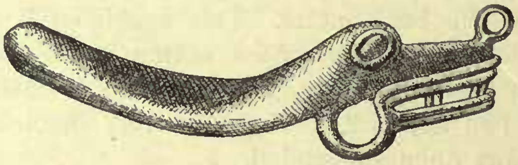

Fig. 349.

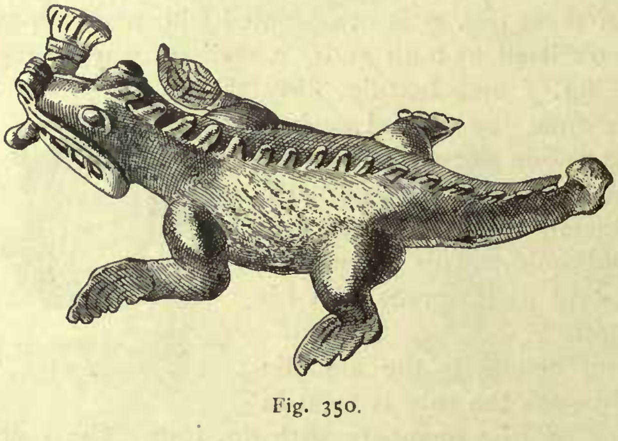

Fig. 350.

Fig. 349.—Simplified alligator figurine in low-grade gold. $^1/_1$
Fig. 350.—Gold image of an alligator holding in its mouth a human leg; from Pueblo Viejo. Heye collection. $^1/_1$

The New York Public Library (Lenox Foundation) is the fortunate possessor of some of the gold ornaments brought to New York by Mr. J. F. Bateman of Panama, who accompanied the first exploring party to Chiriqui, in August, 1858. Mr. Bateman exhibited his collection at a meeting of the American Ethnological Society, in October, 1860. It is stated in the Proceedings[2] that "The articles exhibited differed very much in size and form, a cricket, frog, a sea-shell, and a man, each from one to two inches in length, and an ounce or two in weight; a tiger or jaguar, five ounces, and an alligator, eight and a half ounces, (the heaviest and largest figure yet discovered) and a circular piece of sheet gold, about six inches in diameter, weighing one and a half ounces, with two holes, apparently for suspension."

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[1] Op. cit., 32.

[2] Bull. Amer. ethn. soc., I, 21, 1861.

The large alligator and jaguar, the circular piece of sheet gold, human figurine and frog were afterwards bought by Mr. Robert L. Stuart and presented to the Lenox Library. The alligator is reproduced in figure 351. According to Mr. Elliott of the Library, its weight is eight ounces and 24.6 dwts., or 250.42 grams. The length somewhat reduced by the curving tail is fifteen centimeters. Although head, body and tail (the latter two open ventrally) are hollow, the walls are everywhere massive. The nostrils and eyes are prominent; but contrary to the rule, there are no dorsal scales and spines. On the breast there is a single ring for suspension. The gold has the appearance of being about 20 carats fine. It is no wonder that the country from whence this specimen came was called *Castilla del Oro*.

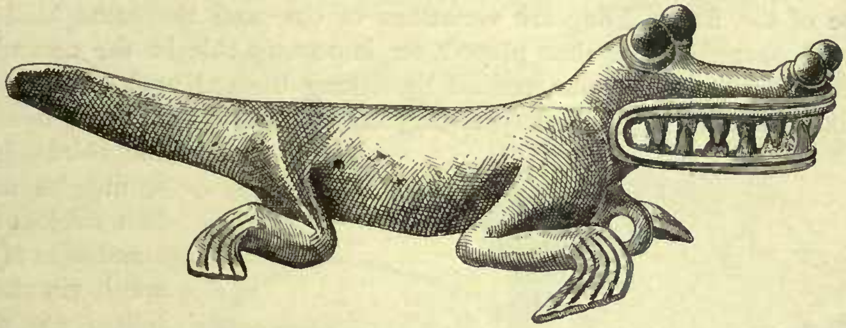

Fig. 351.—Large massive gold image of an alligator. New York Public Library (Lenox Foundation). ³/₄

There may also be seen with the Stuart collection a curious figurine given by Mr. Lenox himself and purporting to be from Chiriqui (fig. 352). This was evidently one of the early discoveries, probably the idealistic image that Bollaert calls: "A bat, with outspread wings and legs, having a dragon-like head, surmounted by four horns, curling inwards, of the purest gold and weighed six ounces."[1] The same specimen was figured in Harper's Weekly, August 6, 1859; the illustration however was a negative instead of a positive, in which the head was so inclined as to give a very different appearance from the original. Lüders also reproduced this piece as part of the Bugavita treasure of

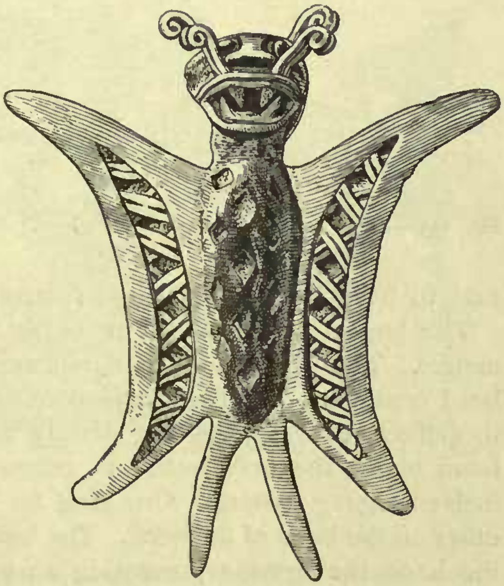

Fig. 352.—Bat-shaped image in fine gold. New York Public Library (Lenox Foundation). ³/₄

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[1] Op. cit., 31.

1858–59. It may represent the vampire (*Vampyrus spectrum*). Peter Martyr (Anghiera), writing at the time of the Spanish Conquest, said that on the Isthmus of Darien the lives of men as well as of cattle were in danger from blood-sucking bats. Alston, on the contrary, later declared the blood-sucking propensity of these creatures to be mythical.

Among Chiriquian gold figurines, representations of the bird dispute first place with those of the frog. They are variations of one and the same kind of bird, probably the sacred parrot that played an important rôle in the ceramic art of this ancient people. It is characterized by a long hooked beak and tufts on the head. The expanded wings and spreading tail suggest flight. For two reasons, the bird in flight would be an excellent subject from the standpoint of the goldsmith, viz.; its adaptability as a breast ornament and the opportunity it gave to produce an apparently large figurine out of a relatively small amount of gold.

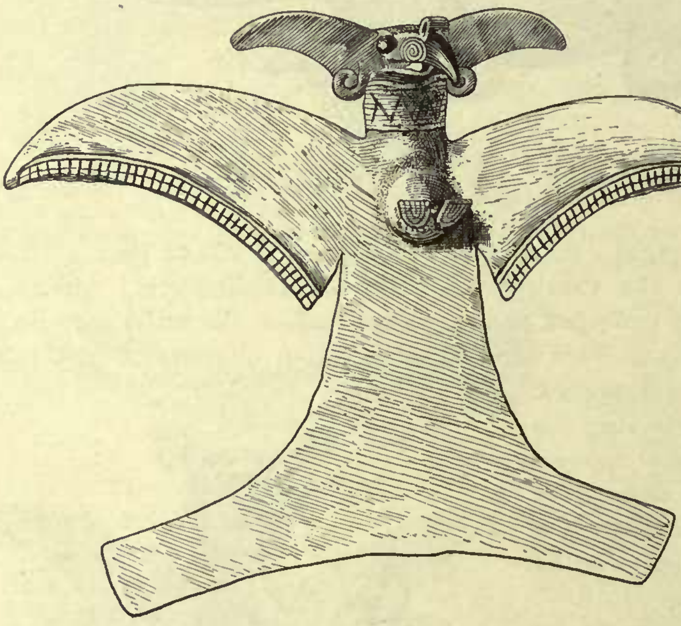


Fig. 353.—Large image of a bird in an alloy of copper, gold and silver. ¹/₁

The ornaments "rudely shaped like eagles" that Columbus saw among the Indians of the Veraguan coast were probably representations of this same macaw or parrot. One of the Indians is said to have had a gold eagle (parrot) worth twenty-two ducats.

The largest of these bird forms (fig. 353) has a total spread of wing of 18.8 centimeters. The head, body and tail appear to have been cast in one piece. The head ornaments and the wings were cast independently and welded on afterwards, the effects of welding being plainly visible on the dorsal side. There is a broad band about the neck made to resemble a series of wire strands, that bears an incised zigzag pattern. One ring for suspension is situated on the beak and another on the back of the neck. The head, neck and body are hollow and open along the back, the figurine presenting an appearance of completeness only when seen from the front. It is an alloy of copper and gold (six carats) with a little silver, and is richer in some parts than in others. A similar piece is shown in figure 354; here the tufts on the head each consists of the head and neck of a snake.

In figure 355, the tufts are formed of three pairs of gold wires coiled at their free ends. They show irregularities in casting. The wings and tail are beaten out to a thinness of less than half a millimeter; the marks of hammering are visible on the back but have been almost completely removed from the front by a process of burnishing that has left numerous fine striæ, which cross in all directions.

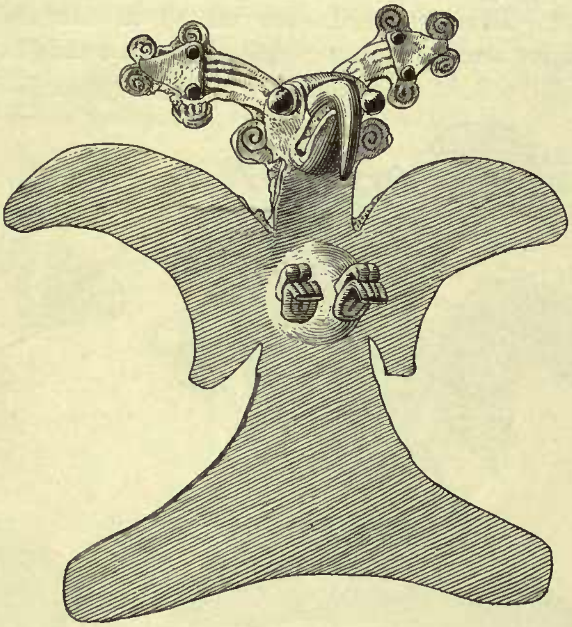
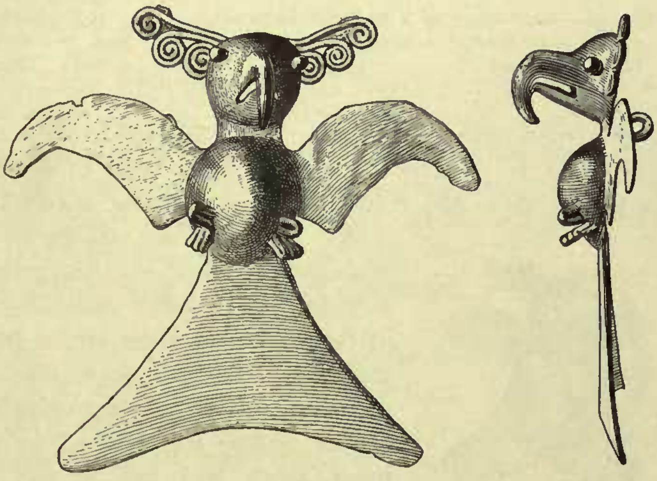


Fig. 354.



a *b*

Fig. 355.

Fig. 354.—Gold figure of a bird, the head surmounted by snake heads. 1/1
Fig. 355.—Gold figure of bird, the tufts being made of coiled wire; *a*.—ventral view, *b*.—profile view. 1/1

The Heye collection includes a bird figurine with plain wing-shaped tufts almost as large as the wings themselves (fig. 356). A small reptile is held in its beak. A similar example, also from the Heye collection, is shown in figure 357. In this case, a fish is held in the beak; and the tufts on the head, instead of being plain, are alligator heads, as indicated by the curving jaws and teeth; the latter are represented by pellets, as was the case in one painting of the alligator. The piece is massive and of fine gold. The hammer marks are seen to excellent advantage on the back of the wings and tail. Both of these specimens are from the valley of Rio Chiriqui Viejo.

A small specimen (fig. 358) in the Heye collection is made up of pieces of sheet gold somewhat thicker than that in the average plaque. The neck, body and tail are one piece. The wings are welded to the breast, while the head with its ornaments is made up of five parts. The jaws and nuchal crest, so characteristic in paintings of the alligator, are gold wires laid on pieces of sheet gold that compose not only the bird's head but also the necks of the two alligators. The nuchal crests are so coiled as to represent the eyes of the bird, thus serving two purposes. One small gold image of a bird differs from all the foregoing in that it is intended to be seen from the back instead of the front (fig. 359). The wings also are differently placed. The ring for suspension is formed half by the long hooked beak and half by a short gold wire attached to the breast.

A highly conventionalized double bird form is reproduced in color (Pl. XLVIII, fig. *c*). The two birds are united at the end of their tails, by one wing in common and by a bar connecting the heads in the region of the eyes. Contrary to the rule, wings and tails are burnished on both dorsal and ventral surfaces. The gold is particularly pure. This type of double bird is frequently met with in Costa Rica, Mr. Keith alone possessing sixteen examples of it from Mercedes.

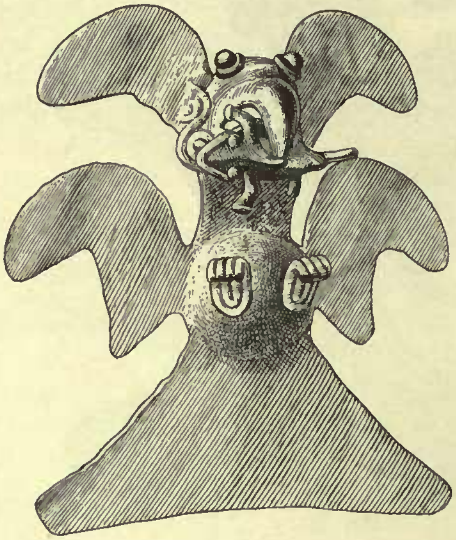


Fig. 356.—Gold image of a bird, with large wing-shaped tufts, holding a small reptile in its beak. Heye collection. 1/1

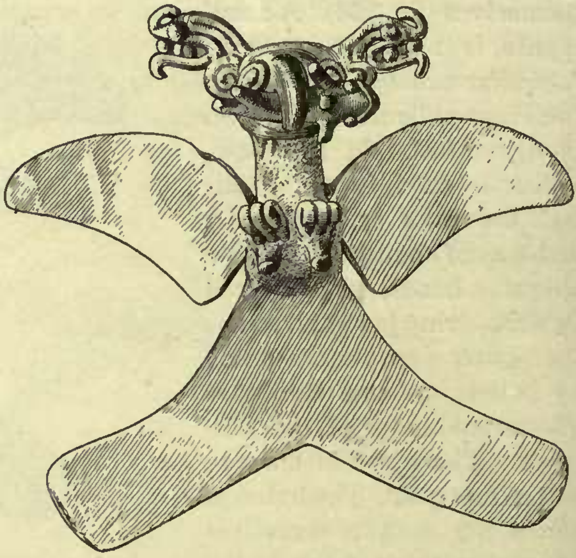


Fig. 357.—Gold figure of a bird, with a fish held in its beak and with conventionalized alligator heads serving as tufts. Heye collection. 1/1

We find representations of the jaguar not only in stone and pottery but also in gold. They all agree in having a wide-open mouth revealing teeth. The animal illustrated in figure 360 is a departure from the conventional method of rendering life forms in repose. Here, there is action in every member, a very strong contrast to the formal pose of the jaguar image reproduced in color (Pl. XLVIII, fig. *d*). The head, neck and tail of the latter are cast in the round, although hollow.

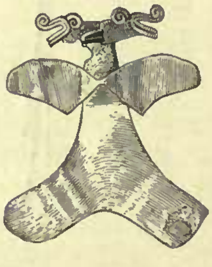


Fig. 358.—Small bird figurine in gold, its head adorned with two conventionalized alligator heads. Heye collection. 1/1

Gold objects representing the human form as a whole or in combination with other animal forms comprise some of the most interesting pieces of the series. For convenience, the apelike forms are also placed in this group, as it is often difficult to determine whether ape or man was intended. Figure 361 is frankly apelike. It is a two-headed monster. The two long monkey tails ending in snake heads are curved upward on either side and are held in the single pair of hands. The body is so constructed as to form an elongated bell or rattle, inside of which is a subangular pellet, apparently of copper. The piece, which seems to have been cast as a whole, has lost much of its head ornamentation of coiled wire, presumably during its use in recent times as a belt ornament. When thus employed it was held in place by a flat tongue attached to the back, the free end of which could be inserted under the belt; but this work of the modern jeweler has been removed. Two similar specimens have been found in Costa Rica (Mercedes and Rio General) and are now in the Keith collection.

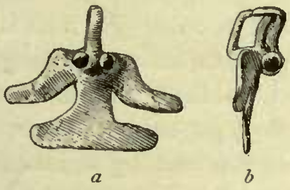


Fig. 359.

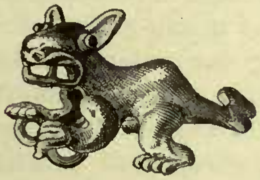


Fig. 360.

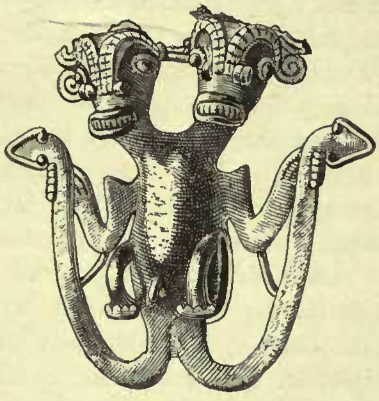


Fig. 361.

Fig. 359.—Small gold figurine of a bird; *a*, dorsal view; *b*, profile view. $^{1}/_{1}$
Fig. 360.—Gold figure of the jaguar. $^{1}/_{1}$
Fig. 361.—Gold image of an apelike monster with two heads. $^{1}/_{1}$

In the Heye collection is a small ape figurine (fig. 362) that is similar in attitude to the representations of the monkey on the stone and clay stools, except that the tail is longer, being arched over the head and held in the hands as a rope jumper holds his rope. The pose is exactly like that in the repoussé figure of a monkey on a circular gold plaque from Cartago, Costa Rica, which is now in the National Museum at San José. It should also be compared with the type reproduced in figure 361 as well as with a specimen illustrated by Holmes.[1]

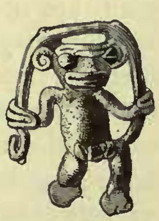


Fig. 362.—Small gold image of an ape. Heye collection. $^{1}/_{1}$

In point of casting, one of the most interesting and delicate pieces is seen in Plate XLIX (fig. *a*). Although of intricate design, there is no external evidence of the joining of parts. The new surface bloom everywhere gives to the group the appearance of being fresh from the molds. There is no burnishing and no hammering except two blows on the left foot of the left figure. The braid of gold wire that forms the hollow square, within which the two figures are set, is so deftly cast that in one place the light shows between the strands. The same effect is produced by plaiting with three wires. The two human figures with elbows touching are holding to their mouths something that resembles a conch-shell or a fish. A large group from Chiriqui similar to this was recently purchased by the British Museum. The specimen is 9.5 centimeters broad by 6 centimeters high and contains gold to the value of about $125. Instead of two human figures, there are eight, all of them holding the conch-shell to the lips. The two central figures are large and their bodies are converted into bells; about them are grouped the six small figures. Among the clay whistles is one (see fig. 315) that represents a monkey holding a fish before its mouth. It would be interesting to know whether these representations all refer to the same myth and what connection, if any, they might have with a similar theme in Peruvian art, viz., a bird holding a fish.

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[1] Ancient art of the province of Chiriqui, fig. 29.

A fine example of the human figurine is reproduced in color (Pl. XLVIII, fig. *e*). The eyes, mouth, nose and ears are all prominent, the latter resembling coils of wire. The arms are half extended, the right hand holding what may be interpreted as a rattle (see fig. 273) and the left, a long rod, probably a flute, one end of which is in the mouth and the other, enlarged at the end by a double coil of wire, is free. The long fingers are executed with care. The brow is adorned with what appears to be a three-ply braid, to each end of which is attached a snake's head. The only articles of apparel consist of a loin-girdle terminating in a coil at either side, a small square apron covering the pubis, and knee-bands. The whole is cast as one piece, with the head, body and legs hollow and left open at the back. This specimen was purchased from de Zeltner, whose relatively small collection contained many choice examples of ceramic as well as the goldsmith's art. His description differs from my own in respect to the head-dress and the object held in the right hand. He also thought that the flattening of the feet was intended to suggest a kind of footwear, while in my opinion it means nothing more than does the characteristic flattening of the hindfeet of the frog. It has already been suggested that the lateral flattening of the frog's feet gave greater stability, when suspended from the neck of the wearer. A like increase of stability is here provided for in the lateral extension of the arms and in the objects held in the hands. There is therefore no need of an exaggerated flattening of the feet. Wherever there is but a single median ring for suspension, the extremities are flattened and extended laterally to give balance; and where they are not so expanded, the desired state of equilibrium is attained in another way; i. e., by two lateral rings for suspension. It has been suggested that the feet were flattened in order that they might be inserted in a crevice, thus supporting the figurine in an erect position. There is some evidence tending to prove that the larger pieces, especially those mounted on a vertically flattened horizontal bar, may have been thus placed or else simply rested against a wall or other suitable object; for in the large figurine of the alligator-god (see Pl. XLVIII, fig. *g*), the ring for suspension at the back bears no marks of wear, while the lower edge of the bar at the feet is worn much more than is the upper edge of the bar at the head.

This same deity is represented by numerous gold figurines, which however are usually much smaller and simpler than the foregoing. It may have been a god similar to Pan of Greek mythology. Another example is given in Plate XLIX (fig. *b*), where the attitude is the same, the rattle being nearly always in the right hand and the flute or stick in the left. There is a simple fillet of gold about the loins, and the knee-bands have dropped till they might be called anklets.

The sex is masculine. The large ears are delicate sigmoid scrolls, one coil of which is much greater than the other. The casting is quite thin. This same type is found as far north as Mercedes, Costa Rica.

A representation of the same deity, but with variations in the details of handling, is shown in Plate XLIX (figs. *c* and *c'*). It is immediately identified by the rattle in the right hand and the flute held to the mouth by the left. The features are carefully wrought. The end of the nose seems to be pierced by a short horizontal rod. The face is set in a sort of frame, the lower end of which is missing. From behind this frame protrudes the head-dress adorned with a number of blunt horns. The median fluted piece at the top is a flattened and curved loop that served as a means of suspension after the two scapula rings had worn through. The figurine, which is thick although hollow and open at the back, bears evidence of much wear. Since there was a ring for suspension back of each shoulder, it was not thought necessary to extend the arms laterally and flatten the feet. The sex is male. This may be the specimen of which Mr. J. F. Bateman speaks in a communication to the American Ethnological Society.[1]

A small specimen from the Lamson collection (fig. *d*) is reproduced here because it is apparently a kindred deity. The figure holds a rattle in each hand. In this case, as well as in the three foregoing, it will be noted that the attitude of the arms suggests that the rattles are in action. The head is adorned with two pairs of plumes. The band about the loins is conspicuous; it seems to have been applied to the figure and made fast by hammering down the free ends at the back. The legs are flattened bars of gold, grooved both in front and at the back, and are probably welded to the trunk. The rest of the figurine appears to have been cast as one piece, with the possible exception of the loin-girdle, the ring at the back and the rattles. The latter two may have been cast first and added to the resin core previous to running the final mold. This specimen has the outward appearance of being about 18 carats fine; in reality it is considerably less. The processes by which the surface was finished in a finer quality of gold than the foundation is not definitely known.

Belonging to the Heye collection is a figurine with features and head-dress not unlike those of the foregoing; it is reproduced in figure *e*. Here there is but a single rattle, which contrary to custom is held in the left hand, the right being extended downward almost parallel with the body. Another human figurine in the Heye collection (fig. *f*) has a remarkable head-dress resembling the *skil* of the Tlingit Indians. A similar head ornament, unfortunately broken, occurs on one of the stone figurines of the Yale collection (see fig. 37), also on a gold figurine from Mercedes, Costa Rica, recently collected by Mr. Keith. Both these gold figurines are from Divala and are of rich yellow gold, the former being approximately 20 carats fine.

An unusual group consisting of two human figurines is in the Howland collection at the Metropolitan Museum (fig. *g*). It is said to have been found in a Chiriquian tomb, but looks more like the art of Colombia. The two images are exactly alike, forming a group that is bilaterally symmetrical. In the outer hand of each figure is something resembling a canoe paddle; while in each inner hand a staff is held vertically. One of these seems to be set with a tomahawk blade and the two are bound together at three or four points. In addition to the head-dress, the central feature of which resembles the blade of a paddle, there is an elaborate necklace and loin-band from which there hangs a short apron. The long pointed noses are turned sharply upward (retroussé). The ear ornaments, the cylindrical ends of which are seen above each ear, are characteristically Colombian.

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[1] Bulletin, I, 21, 1860–'61.

The ancient artificers of Chiriqui understood the value of a frame to a picture. One example has already been given in figure *a*. A second instance is noted in figures *h* and *h'*, which is also a fine illustration of skill in hammering and uniting castings. The hammer marks are visible on both the front and back of the frame, but the welding shows only on the back. The human figurine was molded in a single piece; the two sides and bottom of the frame were cast in three pieces. The dorsal view shows how their thinness was increased by hammering and how the various elements were united — the ears and hands to the sides of the frame, and the latter and the feet to the bottom. Two slender grooved vertical bars, are attached to the elbows and to the lower part of the frame, dividing the space that separates the sides of the latter from the legs. To these bars and to the sides of the frame are attached six small triangular castings, three on each side. They are similar in shape to some of the spine- or scale-motives painted on pottery of the alligator and lost color groups. Two rods of gold, welded at points between the shoulders and the frame, are carried some distance above the head-dress and end in recurved loops that droop forward.

The fact that a repetition of the human figure with similar attributes occurs not only in metal but also in clay and stone tends to increase our interest in ancient Chiriquian mythology, which abounds in original elements and is so highly developed. If only its history could be known and names be given to these distinct groups of deities, as has been done for Egypt, Greece and Mexico!

Two groups have already been cited: the man holding a conch or fish to his mouth and the man with flute and rattle. A third is represented by the small figurine in color (Pl. XLVIII, fig. *f*). This is characterized by the head-dress and by the act of pulling two snakes from its wide-open mouth, one held in each hand by a grip about the neck. Each head is formed by two wires coiled at the ends, while the body of each is composed of two twisted wires. The head of the snake, in the right hand, has been broken off. The foundation of the head-dress is low and flat. Its chief ornamental feature consists of two snake heads similar to the foregoing, but with bodies made of wires that are not twisted. The three projections on the front of the head-dress would be meaningless, were it not for other representations of the same deity, wherein these elements are treated in a more realistic fashion. They are bird heads, an illustration from the work of Holmes (fig. 30) leaving no doubt on this point. The snake heads in Holmes's figure are also more realistic, resembling more the serpent heads with forked tongues on the black incised pottery (serpent ware).

There are other minor non-essential differences of detail. The Yale specimen, for instance, has a loin-girdle and knee-bands, while the one described by Holmes has nothing about the loins. On the other hand, the latter example has an additional snake head attached to each foot and is not only larger but is also framed in at the top and bottom by the customary broad flattened bars of gold.

The ingenuity of the ancient Chiriquian goldsmith was expended not only on these skilfully executed pieces but also on masses of native gold that gave suggestion of the human form or parts of it. Figure 363 is an example. It represents a seated figure with outstretched arms, clothed in a broad loin-cloth and cap. The cap was evidently welded on; the loin-cloth and arms may have been also. The unevenness of the surface, particularly on the back, has been removed by grinding. A somewhat similar piece is reproduced in figure 364.

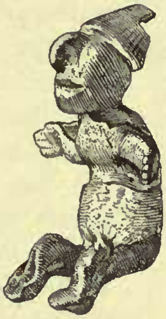

Fig. 363.

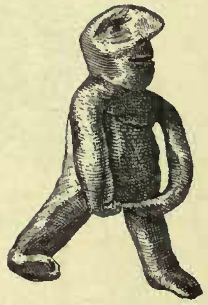

Fig. 364.

Fig. 363.—Seated human figure fashioned from a gold nugget. 1/1

Fig. 364.—Standing human figure fashioned from a gold nugget. 1/1

Perhaps the most important and remarkable divinity of this series is the specimen with a human body and alligator head, illustrated in Plate XLVIII (fig. *g*). Although the figure is large and in an elaborate setting it is made of rich yellow gold. As far as the eye is able to discern, the whole was run in a single mold. The alligator-god standing erect in the center is framed in by a broad thin bar at the top and the bottom, by a snake on each side and an alligator head at each of the four corners. The conception is original and skilfully executed. The ears are serpent heads. The mouth is wide open, revealing teeth, and the snout is coiled downward on a level with the mouth, presumably to protect it from breaking. In a previous chapter it was noted that the snout of the alligator as painted on pottery was invariably recurved upward. The goldsmith's favorite way of indicating the eye, viz., an elongated pellet surrounded by a fillet or wire, the two ends being brought together at the outer angle of the eye, is shown in the central figure. The same is true of the eyes in the four alligator heads at the corners; one of these is somewhat disfigured through faulty casting. The teeth in each of these four heads consist of a series of four pellets resembling scales rather than teeth. Attention should also be called to the fact that the wires forming the snouts are coiled upward as is the rule in representations of the alligator. The snake on each side bridges the distance from one alligator head to the other, its tongue touching the snout of the upper and its tail that of the lower. The anterior half of the snake on the right has been lost. The group is intended to be seen from the front only; hence the braiding of three wires which form the snake's body does not appear on the back; neither do the pellets and fillets that represent eyes, teeth and jaws. There is also no reducing of the irregularities due to casting, except for the hammering of the flat bars at the top and bottom. This idol may have graced a shrine instead of being a personal ornament. The ring for suspension is not worn; on the other hand, the bottom of the lower bar is worn more than the top of the upper one; as if the weight of the figure had rested there. The very weight of the piece would militate against its being suspended as a neck ornament.

An alligator-god not so large as the foregoing and without the elaborate setting is in the British Museum (Cat. No. 4536). It is entered as a "monstrous standing figure with horned head, one horn partly broken off, the other horn terminating in a serpent-like head. At the back of the neck is a loop. Height $3^1/_6$ inches; width 3 inches; weight 303 dwts. 7 gr." This figure stands in the same attitude as the Yale specimen, but the feet do not rest on a flattened bar and nothing is held in the hands. The so-called horns project laterally in the same plane as the half-extended arms and end in inverted alligator heads each with wide-open jaws, the upper one being recurved. An eye, a short nuchal crest and a tooth leave no doubt as to the identity of these heads.

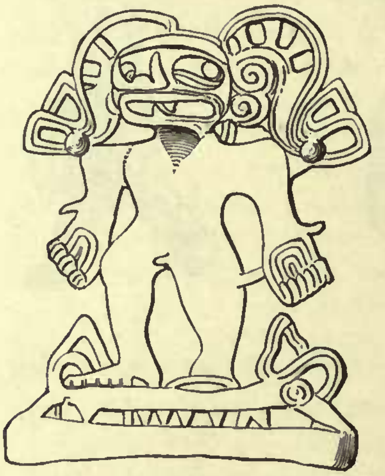

Fig. 365.—Image of "pure gold" representing the alligator-god. (After Holmes.)

Bollaert[1] illustrates another example of this deity which is not so large as either of the foregoing, but has features common to both (fig. 365). It stands on the inverted body of an alligator, which in turn is supported by the customary horizontal bar at the base, the points of contact being the spines on the back of the alligator, whose head is recognized by an eye, upturned snout and open mouth with teeth. The attitude of this alligator-god is the same as in the foregoing examples, resembling more the British Museum specimen in the head and head-dress, as well as in the fact that nothing is held in the hands. The snout ends in two upturned points. Instead of horns, there are two highly conventionalized inverted alligators, their coiled tails being attached to the sides of the head, and their heads resting on the shoulders of the alligator-god. Bollaert, as well as a subsequent writer, who copied his illustration, failed to detect the alligator motive in these ornamental and presumably symbolic features. Bollaert described the specimen as "An idol of hideous and obscene conception, with legs and arms extended; the head flat, having a fan-like crown at the back, a wide open mouth, and a hooked nose." There is a fine specimen of the alligator-god (fig. 366) in the Heye collection. The head resembles that of the example in the British Museum, while the flattened bar at the head and the feet suggest the Yale specimen, as do also the four attached stylistic heads of the alligator; these heads however are exactly reversed in position.

In the Keith collection are two splendid alligator-gods from the Huacal de los Reyes, Rio General, near Terraba, which fact seems to indicate that the domain of this deity extended well into Costa Rica. In figure 367 there is the characteristic prominence in the region of the eyes and the application of a wire coil to the end of the nose to represent the hooked snout. The body of a snake issues from the mouth, its head reaching to the abdomen. Three of the conventionalized alligator heads have the curving snout broken off, only the one on the left-hand side of the head being complete in this respect. The jaws are wide open, and across them run bars for teeth. The piece is considerably worn. The bright yellow color of the gold is only slightly tinged with copper. The other example (fig. 368) has a similar nose piece, but the fronto-nasal prominence is not so well accentuated. Instead of the oft-recurring head-dress composed of a flattened bar with attached conventionalized alligator heads, there is a framework enclosing five sigmoid designs in the shape of a figure eight, each representing a multiple alligator motive. The body and legs are human. At the shoulders and hips, however, are four additional extremities, as if to give greater weight to the reptilian attributes, each of them ending in an alligator head instead of a foot. What seems to be a double alligator-god from this same region has just been figured by Professor Eduard Seler,[1] but the half-tone is so small as to leave one in doubt concerning the distinguishing features. One of the nine Chiriquian gold images exhibited by Mr. Alfred B. Taylor[2] at a meeting of the Numismatic and Antiquarian Society

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[1] Op. cit., 32.

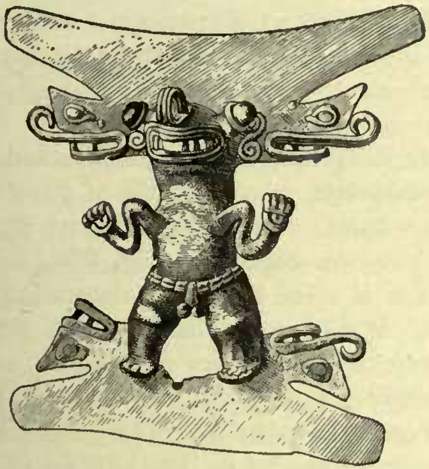

Fig. 366.—Gold figure of the alligator-god. Heye collection. $^{1}/_{1}$

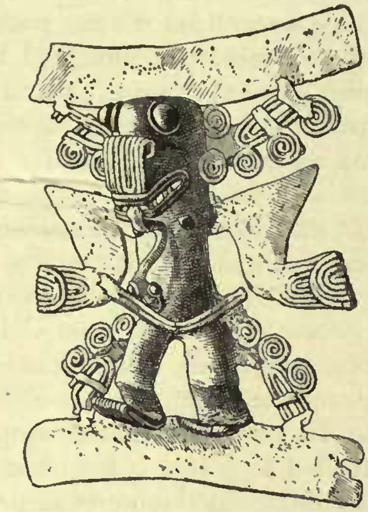

Fig. 367.—Image of gold representing the alligator-god; from the Huacal de los Reyes, Rio General, near Terraba, Costa Rica. Keith collection. $^{4}/_{5}$

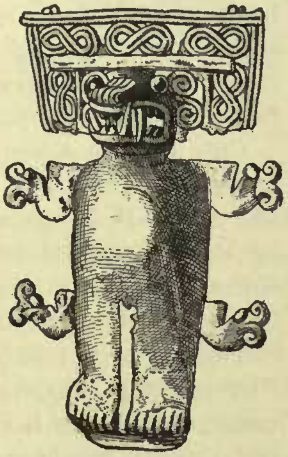

Fig. 368.—Gold figure of the alligator-god; from the Huacal de los Reyes, Rio General, near Terraba, Costa Rica. Keith collection. $^{3}/_{4}$

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[1] Zeitschr. f. Ethnol., XLI, Taf. VI (third row from bottom), 1909.

[2] Golden relics from Chiriqui (paper read Oct. 5, 1865).

of Philadelphia was presumably the alligator-god. It is described as a "Human figure with head of a monster; the mouth open and horns projecting from the end of the nostrils; the head surmounted by a sort of crown, projections from which on either side form an ornamental framework around the whole figure." The nine specimens were a part of the famous Bugavita treasure.

Were the evidence furnished by the gold figurines in question not sufficient to establish the existence of an alligator-god in ancient Chiriquian mythology, the pedigree of this deity could still be based on the remarkable painting in the chalice reproduced in Plate I.

As a rule, metal figurines of man, monkey and bird are so constructed as to present the front or ventral surface to view; while the reverse is true of quadrupeds, reptiles, fishes, crustaceans, etc., the back or dorsal view being the one exposed. This rule is so nearly universal (I recall but one exception, fig. 359, and this may be an importation from Colombia) that it is often helpful in determining the nature of figurines with mixed attributes. A specimen illustrated by Dr. Max Uhle[1] and belonging to the National Museum of Costa Rica furnishes a case in point. Its human attributes are almost entirely wanting but for the fact that it is intended to be seen from the front or ventral surface; the only other likeness to man is in the region of the neck, shoulders and chest. On the other hand, the alligator attributes are everywhere emphasized. The long tail is brought forward in a median line along the belly, where it can be seen. The hindlegs are brought forward in order to make room for two conventionalized alligator heads, one attached to each hip. The head of the figure is supplied with sigmoid scrolls of wire for ears and is surmounted by an elaborate head-dress in a vertical, transverse plane. The upper margin of this head-gear is serrated to represent the dermal markings of the alligator, while at each side is a stylistic alligator head with all its most characteristic features, even to the triangular scale-group symbols on the back of the head and neck. The hands or forefeet, as the case may be, are extended outward and upward till they touch the two decorative heads that form a part of the crown of this alligator-god.

Uhle does not seem to have understood the true meaning of this figure. He described it as half man and half beast to be sure, but mistook the decorative and symbolic alligator heads attached to the hips for the lower extremities, which he thought ended in snake-like heads. The hindlegs proper, which had been shifted forward, he thought might be "a third and fourth or a fifth and sixth leg." He described the head-ornament as a two-headed snake.

There was not only an alligator-god but also a crab-god. The one shown in Plate XLVIII (fig. *h*) is an alloy of gold and copper, with a very thin surface wash of gold that has disappeared from the more exposed portions. The specimen, which is a single casting, is a most ingenious fusion of man and crab. The combination presents the dorsal view of the crab and the ventral view of the man, with the result that both appear to be complete. The crustacean carapace is particularly true to nature. There are however but eight crab legs, one pair not being represented, unless the human legs were intended to take the place of those missing. The chelipeds or front legs armed with large claws also function as the man's arms and are lifted as if to seize the ears. In order to emphasize their human attributes, they are each supplied with two arm-bands or bracelets. The only other articles of adornment or apparel are the crown and the anklets. The correct number of toes may be counted on the feet, which are hammered rather thin and to which serpent heads are attached. The human features are large, the nose being characteristically so. This crab-god holds in his mouth the lower half of a human leg severed at the knee — an interesting fact, the significance of which can only be surmised (see also fig. 350). The crab's body being hollow and supplied with a small ball of copper serves as a bell. The dorsal view reveals a slit or opening, in shape like a horseshoe, the tongue of metal outlined by it looking for all the world like the turned-under tail of a crab, but it is fastened to the anterior end, perhaps in order to emphasize the fundamental structure of the bell.

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[1] Globus, LX, 164, fig. 7, 1891.

Other deities with mixed attributes also occur, the bird-god being one. An example from the Heye collection is seen in figure 369. The body is human; the head that of a bird. There is the customary flattened bar at the top and bottom. To emphasize the bird attributes, six additional bird heads are attached to the figure, two of these taking the place of hands and the other four attached to the bars at the head and feet, respectively, as was previously seen in two groups of the alligator-god (see Pl. XLVIII, fig. *g*; and text-fig. 366).

Another figurine in the Heye collection probably refers to the same deity (fig. 370). Here however the human attributes are minimized. In what would otherwise be a complete bird form, human arms and hands simply take the place of wings. There is the usual wide-spreading, slightly forked tail. The head and its ornament are the same as in the preceding figurine, but the two additional inverted bird heads are not worked out in detail.

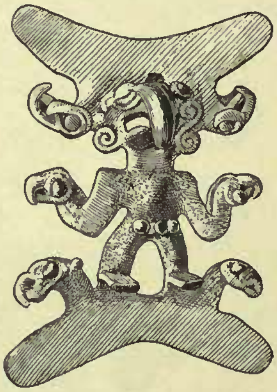

Fig. 369.—Gold image representing the parrot-god. Heye collection. 1/1

In these Chiriquian deities with human attributes, it is generally the latter that dominate. That is so say, the body and extremities are usually human, and the head, animal; in other words, a man with an animal mask, and with ornaments representing parts of the animal in question or of some other. The reverse is true in one specimen belonging to the Heye collection (fig. 371). Here the head, breast and arms are human, and the body and lower extremities avian. The tail being much reduced in size, the bird characters are not evident at first glance. In order to further emphasize these, a bird foot is the central feature of the elaborate head-dress and the human hands are replaced by bird feet. Two conventionalized bird heads are also placed at the sides of the body and serve as supports for the elbows.

Among the Chiriquian antiquities exhibited by Captain Dow before the American Ethnological Society, nearly fifty years ago, was a gold image with attributes suggesting the foregoing. It was "in the form of a man, holding a bird in each hand, sustaining one on his forehead."[1] It should be noted that here the entire bird takes the place of the bird foot present in figure 371 — evidently another example of the bird-god. The Imperial Museum of Natural History, Vienna, possesses a small bird-god of gold — an avian head and wings and a human body and lower extremities. Decorative alligator heads are attached to the calves, one on each side, and a small animal is held in the beak of this deity. If God created man in His own image, man on the other hand in making to himself graven images of his god or gods would quite naturally give them human attributes. This rule seems to have held good in Chiriqui as well as elsewhere. It is not strange therefore that the pre-Columbian Chiriquians should have chosen to represent their gods, many of them at least, with human attributes. In fact the parallelism between these Chiriquian deities and certain gods of the Hindu pantheon is most suggestive. I need only mention Ganésha, the god of prudence and policy, represented with human body and elephant's head; or some of the many incarnations (avataras) of Vishnu, as: 1) Matsya, part fish and part man; 2) Kurma, part tortoise and part man; 3) Varaha with human body and the head of a boar. There is also Hánuman, one of the lesser deities, with a monkey's head on a human body.

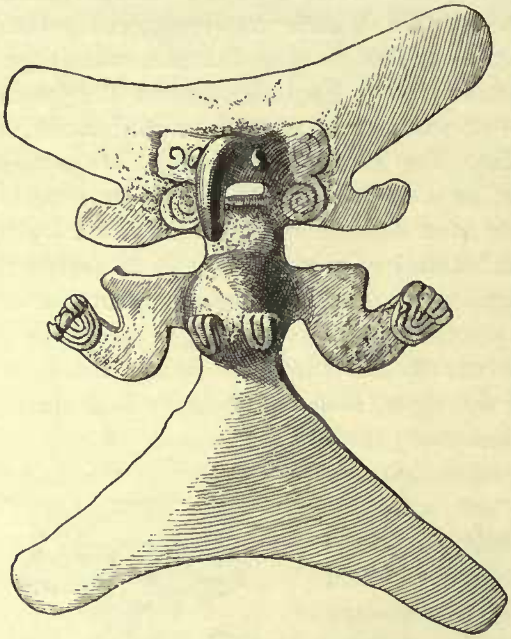

Fig. 370.—Gold figure of the parrot-god. Heye collection. ¹/₁

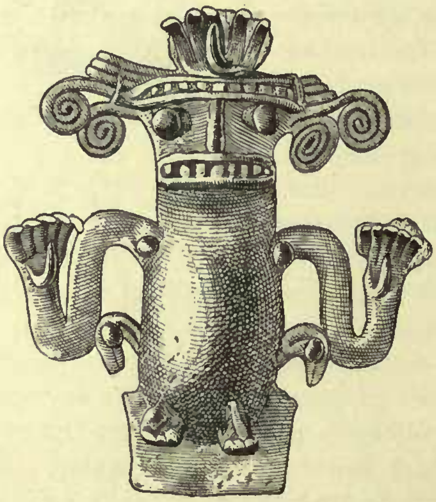

Fig. 371.—Gold figure of the parrot-god. Heye collection. ¹/₁

The evident esteem in which the parrot was held, both among the Chibchas and the Chiriquians, as well as the particular type of avian characters seen in the bird-god, leads me to conclude that the latter might be given the specific name of parrot-god instead. The beaks are always parrot-like. Two of the finest examples of what we shall henceforth call the parrot-god were recently acquired by Mr. Keith and like the two alligator-gods in the Keith collection form part of the golden treasure of the Huacal de los Reyes in the valley of Rio General, Costa Rica, discovered some three years ago, and almost rivaling in richness the Chiriquian huacal of Bugavita. These two parrot-gods are similar except as to details. The body and legs are human. The head and the forked wings that replace the human arms are the only avian characters. The figures are strengthened by the characteristic flattened bars at the head and feet, to which and to the bars are attached conventionalized alligator heads. The eyes are large and projecting. Each image is supplied with knee- and loin-bands. A number of differences are to be noted. In figure 372, the eyes are bell-shaped, hollow, slit and provided with pellets; and a small reptile is held in the beak. The alligator heads are made of wires. The image reproduced in figure 373 holds a fish in its beak. There is a ring for suspension at the back as well as on the beak. In both of these examples, certain parts, as the wings and alligator heads, have the appearance of being cast separately and then attached to the central figure by fusion and pressure. On the other hand, there are some features which can be accounted for only by the supposition that while the model was composed of a number of parts, the gold figure itself was cast as a whole.

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[1] Bulletin Amer. ethnol. soc., I, 12, 1860–'61.

[2] Edward Moor. The Hindu pantheon, Pls. 1, 48, 53, 54, 1810.

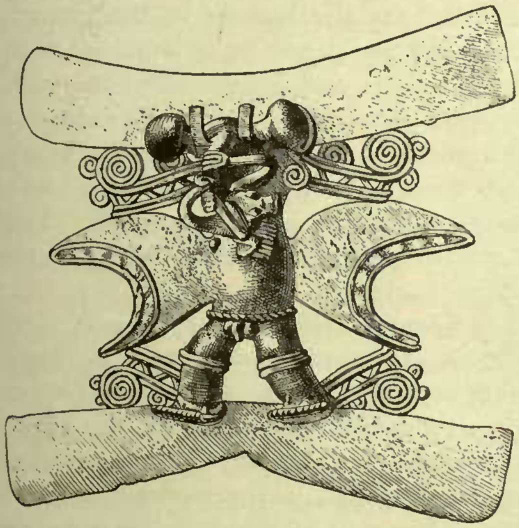

Fig. 372.—Gold image of the parrot-god, with alligator motives at the head and feet. Keith collection. ¹/₁

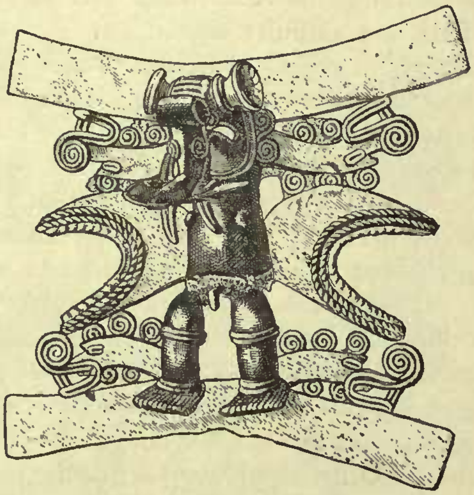

Fig. 373.—Image of the parrot-god in gold, ornamented with alligator motives at the head and feet. Keith collection. ¹/₁

Frau Dr. Alice Mertens has recently given to the Royal Ethnographical Museum, Berlin, a valuable series of Costa Rican gold ornaments also from the valley of Rio General. Judging from the published photographic reproductions,[1] one of these is a double parrot-god, with two complete human bodies, each having two arms and a single wing, the latter attached to the distal shoulder in both. One head is missing; the other is that of the parrot. Another double image in the same collection resembles the foregoing in every essential feature with the possible exception of the heads, the smallness of the half-tone rendering it impossible to determine whether they are avian. If not, then we have to do with a mixture of three instead of two forms. In this connection it should also be noted that human attributes do not always constitute one of the elements in composite gold images. For example, the wings and tail of a bird are sometimes attached to the head and body of an alligator. One image of this type is illustrated by Lüders,[1] who also figures a deity with body and tail of a bird, human arms with a rattle in each hand, and an alligator's head with horns representing two conventionalized headless alligators. Where the figure is part human I have suggested that it be called a god. Whether images composed of two or more animal forms can be classed as gods is a question.

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[1] Eduard Seler. Vorlage einer neu eingegangenen Sammlung von Goldaltertümern aus Costa Rica. Zeitschr. f. Ethnol., XLI, 463, 1909.

Representations of the parrot-god are confined neither to the gold figurines nor to Chiriqui. At Mercedes, near the Atlantic coast of Costa Rica, Mr. Keith has found a number of stone slabs of various sizes resembling somewhat the gravestones in the colonial cemeteries of New England. Instead of being used as headstones however they are said to be found at the bottom of the graves. They are skilfully carved out of volcanic rock and are generally ornamented with figures in relief, or in the round. Two of the smaller and simpler slabs are each adorned with a parrot-god. It stands at the centre of one end, with wings extended outward and downward until they touch the corners of the slab. The entire figure is thus in the round. The body and legs are human, to which are added a bird's head and wings. In one instance the wings terminate in jaguar heads. The Central American parrot-god recalls the Assyrian god of fecundity, which is represented as having the head and wings of an eagle.[2]

Many of the celt-shaped amulets from Las Guacas, Nicoya (Costa Rica), described by Hartman[3] as "anthropomorphic," are also ornithomorphic, i. e., have mixed attributes. These are in all probability representations of the same parrot-god of which such fine examples in gold have just been noted. That the blade of the celt is also the tail of a bird, there can be no question. Hartman states that: "Often the lower part of the face, including the nose, is represented enclosed by a square incision, having its upper corner at the root of the nose, its opposite at the apex of the chin." Now the upper half of this diamond delineates either the human nose or the slanting lines that begin near the base of the nose and extend past the corners of the mouth. The lower half of this diamond is sometimes the outline of the human chin but is often that of a bird's beak instead. Thus the "chin" which, according to Hartman, "is in numerous specimens triangular, beak-shaped, prolonged downwardly on the breast," is in reality the parrot's beak. In other words, the head is both human and avian, the figure as a whole being analogous to that executed in gold, the differences being practically confined to such as are due to the nature of the medium. Even the head-dress is the same although not so elaborate. Instead of the relatively large gold bar representing a common animal body (usually that of the alligator) with conventionalized heads at each end, there is a reduction of the whole, differing in degree, from the two opposing heads brought close together to two simple projections resembling the ear-tufts. In fact the two tufts characteristic also of parrot figures in clay may be but the highly conventionalized symbolic head-dress composed of alligator heads — a supposition strengthened by the fact that these same images are decorated with alligator motives in color (see figs. 248–49). Hartman rightly construed the meaning of the head-dress on a number of the celt-shaped amulets from Nicoya as being two alligator heads united by a short common body. It is interesting to note that tiny anthropomorphic and ornithomorphic celt-shaped amulets of gold have been found in Colombia. The Field Museum, Chicago, possesses a number of these, although no single specimen that I have seen combines both human and avian characters.

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[1] C. W. Lüders. Jahrbuch der Hamburgischen wissenschaftl. Anstalten, VI, Taf. III, Abb. 10, 11, 1888.

[2] L'Anthropologie, XX, fig. 48, 1909.

[3] Archeol. researches on the Pacific coast of Costa Rica. Mem. Carnegie mus., Pittsburgh, III, no. 1, Pls. XXXIII–XXXV, XLIV, 1907.

The gem of the Heye collection, representing a creature part human and part jaguar, presumably a jaguar-god, is reproduced in figure 374. The central feature is the human body surmounted by the jaguar's head. The hands are replaced by jaguar heads. There is an extra pair of arms attached to the sides of the body, which also terminate in jaguar heads. Finally, there are bars projecting laterally from the ankles that end in jaguar heads, the bars themselves serving as bodies for these. The loin-band is composed of the bodies of two snakes. As in the case of the crab-god, the human body is so constructed as to form a bell or rattle, the metal ball within being of about the same grade of alloy as the figure itself. The entire group is set in a square frame of plaited work, on the outer margin of which and at the back is attached a series of spirals. This fine specimen, which was collected by Mr. Utley at Pueblo Viejo, should be compared with the jaguar deity as exemplified in Chiriquian ceramic art (see Pl. XLI, and text-fig. 244).

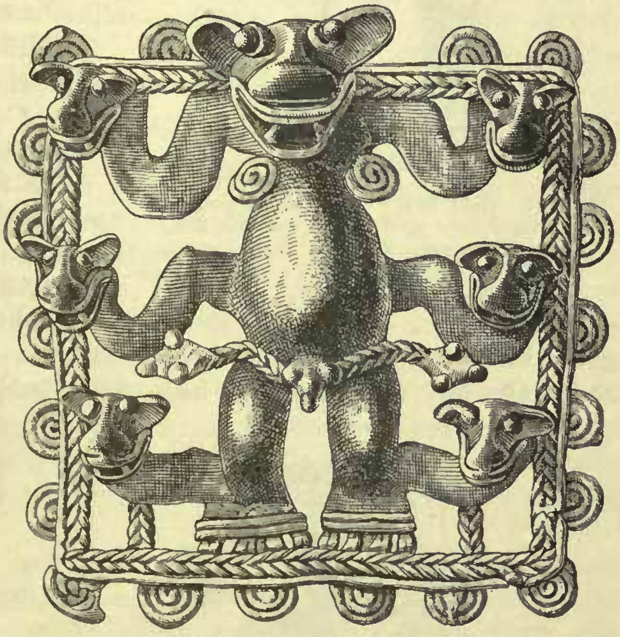
Fig. 374.—Gold image presumably of the jaguar-god. Heye collection. 1/1

The Keith collection of gold ornaments includes a number of jaguar-gods. The one reproduced in figure 375 is from the Huacal de los Reyes, Rio General, Costa Rica. The bars at the head and feet are each altered by a row of triangular perforations, while the four alligator heads are so highly conventionalized as to become simply curved extensions of the flattened bars. There is no differentiation of jaws, teeth and eyes. In fact, each bar with its two curved extensions is a multiple alligator motive — a common body with a head at each end, the triangular perforations representing alligator spines or scale groups. The feet and hands of this image are represented by very fine wires. The right foot had been broken off and afterwards mended, as is indicated by a carefully drilled hole through the foot and another through the bar directly underneath. This is the figurine in the hollow head of which the resin plug is still retained; it is of special interest in throwing light on the process of casting. In figure 376, reproducing a jaguar-god also from Rio General, it is quite evident that the bar and its curved extensions represent the multiple alligator motive, each head being differentiated. The spines on the common body are placed ventrally, as in the preceding figure. The bar with the alligator heads at the feet is entirely wanting in this example, which should be compared with two images reproduced by Lüders.[1]

A third jaguar-god in the Keith collection (fig. 377) is from Mercedes on the Atlantic side of Costa Rica. The treatment is similar to that in the preceding figure, except that a rattle resembling a dumb-bell is held in each hand; and instead of the horizontal bar representing a body common to the two conventionalized alligator heads, the two bodies are set like horns in the head of the jaguar-god. In both figurines however the alligator motive is alike, in that the spines and scales are placed ventrally instead of dorsally. In figure 375, the same result was arrived at by means of a row of triangular perforations. The three figures taken together furnish the key to the meaning of the bars that form the head-

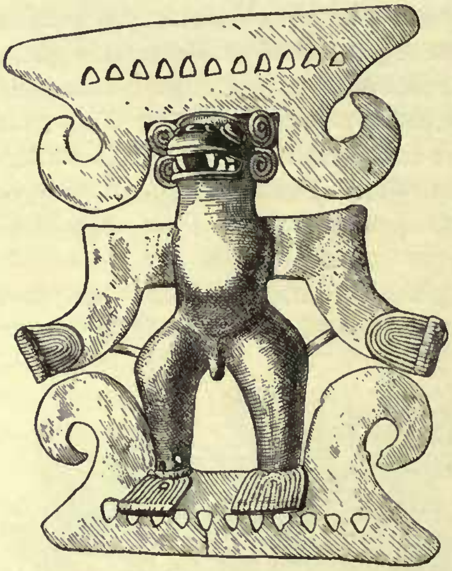

Fig. 375.—Gold image of the jaguar-god, the perforated bars at the head and feet being alligator motives; from the Huacal de los Reyes, Rio General, Costa Rica. Keith collection. ¹/₁

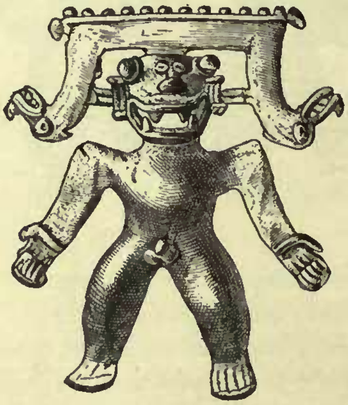

Fig. 376.—Gold figurine representing the jaguar-god with an alligator motive serving as head-dress; from Rio General, Costa Rica. Keith collection. ¹/₁

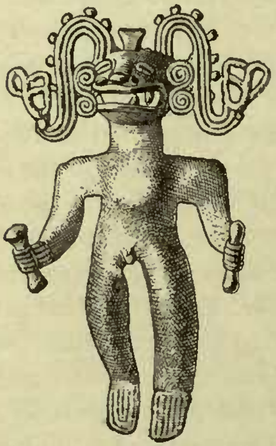

Fig. 377.—Gold figure of the jaguar-god, with the alligator motive serving as head-dress; from Mercedes, Costa Rica. Keith collection. ¹/₁

and foot-piece to so many Chiriquian gold figurines, this type of setting for such images being in fact one of the characteristic features of Chiriquian art. These bars are derived from, or at least merge into animal forms — two heads and a common body. A majority of them represent the alligator, a rare exception to this rule being given in figure 369, where bird heads are employed. The bar in that case is presumably an avian body, common to the two heads which it connects. The present northern limit of the use of these flattened symbolic bars at the head and feet of gold images is Nicaragua, west of the lakes. A good example from this region is in the American Museum of Natural History. This image, which is small and of low-grade gold, resembles that reproduced in figure 375. The head however is apelike; there are loin- and knee-bands; and the bars at the head and one at the feet are not even perforated. Similar gold figurines from Colombia are to be seen in the Field Museum, Chicago.

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[1] Op. cit., Taf. II, Abb. 4, 5.

Like the parrot-god, the jaguar-god also occurs on the monumental stone slabs as well as in the form of independent stone statues, examples of both having been found recently at Mercedes, Costa Rica, by Mr. Keith. One of these slabs is about two meters high by fifty-nine centimeters wide and ten centimeters thick. The front is plain. Resting on the top is a group of three jaguar-gods carved in the round. The bodies and extremities are human. While the head in each case is that of the jaguar, it is adorned with long human hair reaching down to the lumbar region. In addition, the larger, central figure wears a crown. The grouping is admirable. The chief god rests on both knees with arms extended and hands on the shoulders of the figures at the sides. These two smaller gods are of equal size, the one on the right kneeling on the right knee and that on the left kneeling on the left knee; the group as a whole is thus bilaterally symmetrical. The two lateral margins at the back of the slab are decorated with eighteen small figures of the jaguar, nine on each side, with heads all directed toward the group of jaguar-gods. Beginning at the upper corners, these jaguar figures are distributed at equal distances, the last ones being situated at least thirty centimeters from the foot of the slab.

Equally remarkable is the great stone statue representing the jaguar-god and found also at Mercedes by Mr. Keith. It is of stocky proportions, with a height equal to that of a short man. It wears a cap or crown, cylindrical ear-plugs and a sash carried over the left shoulder and reaching down to the left hip. The right arm is missing. In the left hand is held a human head, the long coiled hair of which is brought up over the right shoulder, as if to balance the sash on the left. This statue has certain points in common with one also from Mercedes, illustrated by Hartman,[1] although the head and body of the latter are both human. The discovery of these fine examples in stone of the jaguar-god not only serves as a confirmation of my belief in the existence of that deity based on the gold and earthenware specimens already described, but also extends the boundaries of the cult half-way across Costa Rica.

The Yale collection includes a single rare, plaque-like gold mask representing the human face (fig. 378). It is a squarish sheet of gold-leaf, somewhat thicker than ordinary tin-foil. The margin is plain and near each of the four rounded corners is a perforation, the puncture having been made from the front; one of these has been almost completely obliterated by a break, but the traces of it are distinct enough to prove its existence. It is not likely therefore that this piece was worn as a breast ornament suspended from the neck, but rather as a mask. As it is much too small to cover an adult face, it may have served to cover the face of an idol. The human features — eyes, nose and mouth — are slightly raised by repoussage. There are also three elongated lumps produced in the same way. One of these is placed horizontally on the forehead and in line with the nose and mouth; the other two are paired and placed vertically under the eyes and a little above the level of the mouth. They may possibly represent tattooing. A gold mask from Agua Caliente, near Cartago, Costa Rica, marked in almost the same manner has been figured by Uhle as belonging to the Troyo collection of the National Museum at San José. Similar gold masks were found by Schliemann on the faces of the dead in certain tombs of Mycenæ.

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[1] Archæological researches in Costa Rica, Pl. 3, fig. 1, 1901.

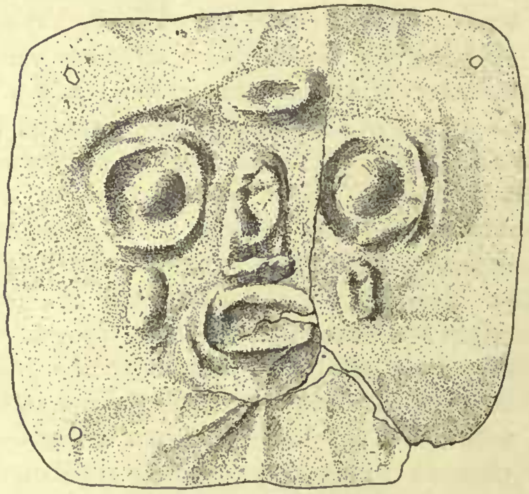
Fig. 378. — Rare gold mask representing the human face. ²/₃

Dr. George F. Kunz[1] describes a somewhat similar "plaque ornament" that was found on the banks of the Mingindo river, a tributary of the Atrato, in the state of Cauca, United States of Colombia. This however is circular and the mask-like characters are not so pronounced. There are but two perforations, their position being in the upper part between the eyes, suggesting that the piece was used as a breast ornament. It belongs to Mr. S. L. M. Barlow, who states that a banker of South America had purchased a hundred of these shield-shaped ornaments simply for their bullion value. They were melted down, no description of them having been kept. The same author[2] describes a circular gold plaque (from a Florida mound), the surface of which is decorated with raised work resembling beads and pendants. These are near the margin, while in the center is a circular raised portion. This piece is not perforated.

Bollaert mentions that Messrs. Pixley and Company of London allowed him (about 1860) to examine five of their circular gold plates from Chiriqui. The largest was 7¹/₄ inches in diameter and had seven circular embossments. In describing the voyage of Columbus along Costa Rica and Veragua, Irving[3] says: "Here, for the first time on the coast, the Spaniards met with specimens of pure gold, the natives wearing large plates of it suspended round their necks by cotton cords."

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[1] American antiquarian, Sept., 1887.

[2] Op. cit., July, 1887.

[3] Life and voyages of Christopher Columbus, II, 314, 1892.

There are a number of splendid gold plaques in the Heye collection, the most interesting being illustrated in figure 379. It is circular and made of relatively thick sheet gold. All the repoussé work on it seems to have been done from the back. Near the margin are two circles of raised points. Within this field are five large embossments, each surrounded by a single row of raised points. The disk is supplied with two pairs of perforations for suspension, the outer pair having been made after a crack had penetrated to one of the original holes. The two small holes near the margin are the result of mending the break. The large embossments are realistic representations of the female breast, even the nipple being faithfully rendered. A girl before marriage is supposed to wear a plaque with a single breast, while after marriage a plaque with a pair of mammæ may be worn. Mr. Heye has one small piece of sheet gold with but a single breast design.

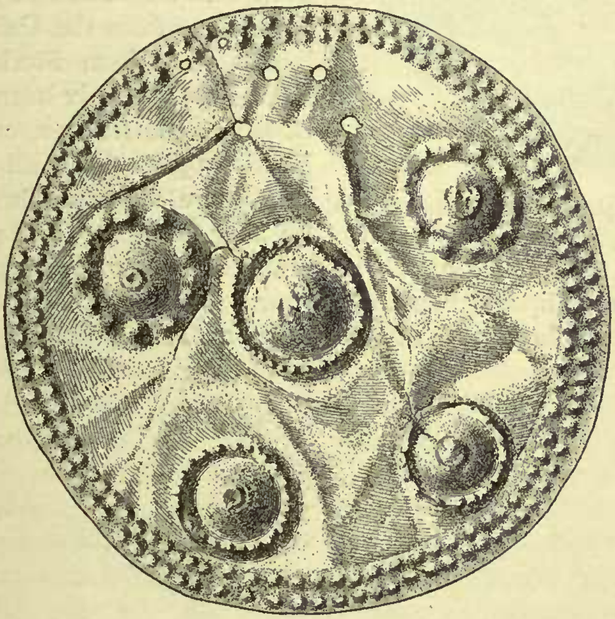

Fig. 379.—Large gold plaque with five embossments representing the human breast. Heye collection. 1/2

The Heye collection includes two other gold plaques, almost identical in size with that in the foregoing figure. One has two circles of raised points about the margin; the other, which is exceedingly thin, has a circular indentation near the margin but no embossments. Both are convex on the front, while the plaque with the five mammæ is perfectly flat save for the repoussé work. The piece reproduced in figure 380 also belongs to the Heye collection, and is of special interest because the repoussé work is not all done from the same side, it being sunken except the circle near the margin which is raised. The central field is convex.

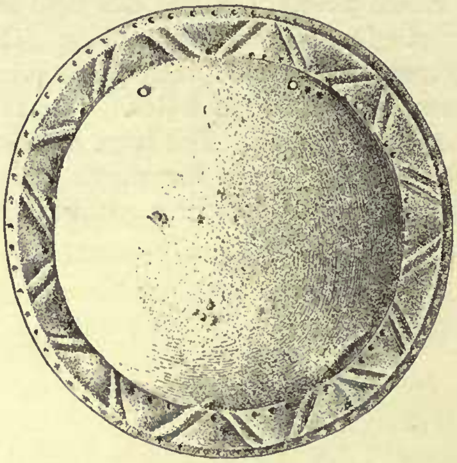

Fig. 380.— Gold plaque. Heye collection. 1/2

The use of metal disks or plaques as breast ornaments was widespread in pre-Columbian times. They are reported by Ambrosetti from the Calchaqui region of Argentina. A mummy found by Uhle near Casabindo, wore a copper disk on its breast. The specimen is now in the Museum für Völkerkunde, Berlin. Bollaert figures a gold plaque from Cuenca, Ecuador; and a half-dozen from Angel, Province of Carchi, are to be seen in the Museum of the University of Quito. Saville describes copper disks, also from Ecuador, each with an embossed face in the center. Specimens from the United States of Colombia and from Florida, described by Kunz, have already been noted. Clarence B. Moore illustrates a copper plaque from Mt. Royal, Florida, and points out its resemblance to those shown by Le Moyne on king Outina. Gold plaques have been found in various tombs of Mexico, in some cases on the breastbone. They are the symbol of Tezcatlipoca, "shining mirror," and are represented in the ancient codices as worn on the breast of the priests of Tezcatlipoca.

CONCLUSIONS.

Before American archeology can become a science, it must be studied regionally and intensively. Each region may be likened to one of the blocks in a picture puzzle, with this difference, that the seriousness of the problem is due more to the loss and indistinctness of parts than to their disarrangement. Not only is the picture on many of the blocks indistinct and incomplete, but often whole blocks are missing. It behooves the archeologist therefore to study the more minutely every existing fragment for clues that may lead to the reconstruction of that which has vanished.

Chiriqui as a region for intensive study has many points in its favor. It lies at the gateway of two continents, midway between the classic fields of Mexico and Peru. That part from which the vast majority of antiquities came is of small extent, bounded on the north by a rugged mountain chain and on the south by the Pacific Ocean, a veritable garden spot, sloping gently from the foot-hills of the Cordilleras to the sea and abundantly watered by scores of mountain streams. The soil is exceedingly rich, capable of supporting a large population, and the climate is agreeable and healthy. On such a soil and amid such an environment a splendid civilization might well be nurtured and grow to maturity.

My reason for choosing Chiriqui as a field for intensive study is that the most important collection of Chiriquian antiquities known, the one belonging to Yale University, is in my charge. What I know of Chiriquian archeology has been learned from it, from other collections both public and private, and from libraries. What I have gleaned is offered to students of American archeology as a contribution that invites a supplement from some one who may be so fortunate as to have the time, inclination and opportunity for a personal investigation of this region. It may not yet be too late to gather much information regarding the various types of graves, for example, and the association of artifacts within them. Until this is done, our knowledge of the time element and of the various steps in the development of Chiriquian culture must remain largely conjectural.

In freely acknowledging my indebtedness to previous writers on the archeology of Chiriqui, the chief among them being Professor W. H. Holmes, it is fitting that I should close with a presentation of some of the fruits that have ripened primarily in the light of my own researches.

The art products of Chiriqui comprise implements, statuettes, metates, stools, petroglyphs, sculptured columns, amulets and ornaments of stone; pottery in the form of vases, tripods, bowls, cups, figurines, whistles, rattles, spindle-whorls and stools; and metal objects of gold and copper, alloys of these, and bronze. A single shark's tooth, perforated for suspension, has been noted, and one figurine of rosin.

Attention is called to the general phylogenetic trend in the development of Chiriquian art as a whole. The ties that bind the product of the stone worker to that of the potter and the artificer in metal are more noticeable between stone and pottery on the one hand and pottery and metal objects on the other, than between stone on the one hand and metal on the other. It is significant that these ties binding together the art in all mediums seem to be centered in the group of unpainted pottery, to which I have given the name *armadillo* ware.

With the exception of architecture, the stone art of Chiriqui compares favorably with that of Mexico or Peru. The chipping and polishing of stone implements was carried to a high degree of perfection in view of the serious handicap due to the apparent lack of flint and obsidian, which have been everywhere the chief heritage of stone-age culture. Use was made of local stone almost exclusively, the choice of materials being confined principally to those of volcanic origin. The overcoming of technical difficulties inherent in the raw materials is nowhere better exemplified than in the series of celts, metates and stools. Jade ornaments are rare; the character of the material and the workmanship point to a kinship with the numerous amulets of jade that have been found in Nicoya, or at least to a common source of jade supply located presumably somewhere in Costa Rica.

Fictile products form the great bulk of Chiriquian antiquities. The major part of these are simply vessels in the form of vases with round bottoms or mounted as tripods. Their prototype was presumably the calabash. Aside from this the plant world had practically no influence on the elaboration of form and ornament in clay, the plasticity of which is so well calculated to stimulate the imagination, clay yielding readily to any form that fancy may dictate. These forms, whether useful or ornamental, present surfaces that invite further decoration by means either of engravings or painted designs, thus bringing into play the whole realm of art, from sculpture in the round and relief to engraving and painting.

Chiriquian pottery admits of classification into: (1) Unpainted ware and (2) painted ware, each main division comprising a number of subdivisions. My reasons are given for proposing several changes in the nomenclature of Holmes. Instead of the "terra cotta" or "biscuit" group the name *armadillo* is recommended for the great group of unpainted ware, and the *serpent* group is substituted for the "black incised" group. In the division of painted ware, a change of one group name is suggested, viz., *fish* group instead of "tripod" group. These changes are all in line with Holmes's choice of the name "alligator" for one of the important groups of painted ware. The names of animal forms are thus applied to four groups instead of only one, as was the case in the earlier classification. The changes therefore are justified by precedent, as well as on the ground of appropriateness and uniformity, and by the fact that the ancient Chiriquian potter drew his motives wholly from the animal world.

I have given the name of *chocolate incised* ware to a small group not hitherto noted, with distinctly Costa Rican affinities. Some of the larger groups admit of further differentiation; for example, the salmon-colored variety of the armadillo ware. The handled group also comprises two more or less distinct varieties, one painted and the other unpainted. On the other hand, the polychrome ware and the alligator ware have so many points of similarity that they might well be considered as varieties of one group, to all of which the name *alligator* applies with equal fitness. Alligator motives predominate in both, but those in each group are distinctive in character. This fact supported by the presence of characters that are common to the polychrome ware alone — such as the use of an additional delineating color (purple) and the occurrence of the branching scroll — offers sufficient reason for retaining the old name, although the latter is liable to lead to confusion, having already been applied by other writers to totally different kinds of pottery. In fact the name polychrome might equally well denote any class of pottery in the decoration of which the requisite number of colors were employed.

In making animal motives a basis for classification, therefore, it must not be inferred that a motive derived from a given animal is confined wholly to a given group of ware. While distinctive of the armadillo group, motives derived from the armadillo or parts thereof appear sparingly in other groups, serving as ties that bind together a series of related groups. Motives derived from the armadillo are everywhere plastic, presumably because they originated in a class of unpainted ware that depended on sculpture and relief for ornament. When transferred to painted ware, their plastic origin still asserted itself. The development of a whole series of motives derived from the armadillo is first noted in this work. This evolution was accomplished by a process of elimination, by wholesale reduction and simplification, also by the isolation of parts and their use as symbolic or decorative motives independent of the animal as a whole. We have thus eye, foot, tail and carapace motives. These are employed in series, either separately or in combinations, to produce highly original, significant and decorative patterns — such as, for example, a meander encircling the neck of a vase, composed of a series of tails or of carapace bands, with an eye or a foot symbol filling each angular space.

The alligator was also a great favorite with the ancient Chiriquian potter. Motives derived from it however are executed in color instead of in relief. They characterize a group of ware that depends on color for ornament rather than on sculpture, and when carried over into other groups they appear consistently as painted forms, but with an individuality somewhat altered by the technique of the group of ware in question (see figs. 381–384).

Realistic painted representations of the alligator are in profile. By this means, the peculiarities of its anatomy and pose are easily indicated. A number of processes set in action lead to conventionalism. Some of these are: (1) The reduplication, exaggeration, elimination, or fusion of parts or units; (2) transposition, shifting and substitution; (3) isolation of parts and their use independently of the whole; (4) wholesale reduction and simplification, and (5) adaptation to fit a given space. The profile figure is eventually reduced to a mere body-line with a spot in the hollow of the dorsal curve to represent scales and spines on the animal's back. This becomes a decorative motive and when repeated in a series forms a pleasing pattern. Groups of two, one of them being inverted, form a unit of the sigmoid scroll. A number of these motives are often combined in such a way as to produce the branching scroll that characterizes the ornamentation of the polychrome ware. A single profile motive reduced to its lowest terms would have made a very convenient hieroglyph in a system of writing, but there is no evidence to prove that it was used as such. The same can be said of the spine motive and the scale-group motive, both of which become differentiated from the profile motive.

Another favorite alligator motive is that derived from the dorsal view and frequently employed as a panel decoration. The rows of spines and scales on the back of the alligator are represented by a number of parallel lines, the outer ones alone bearing spine, scale, or scale-group symbols, and these only along their outer margins. This motive is common not only to the alligator ware but is also frequently met with in the lost color group, where its appearance is somewhat altered on account of the lost color technique. A comparison of figures 381 and 383 discloses these differences at a glance. Figure 382 is taken from a tripod vase of the white line group and differs from the same motive in both the alligator and lost color groups. That the profile motive also undergoes changes when passing from the alligator group to the polychrome group, is evident from a comparison of figure 384 with figure 224.

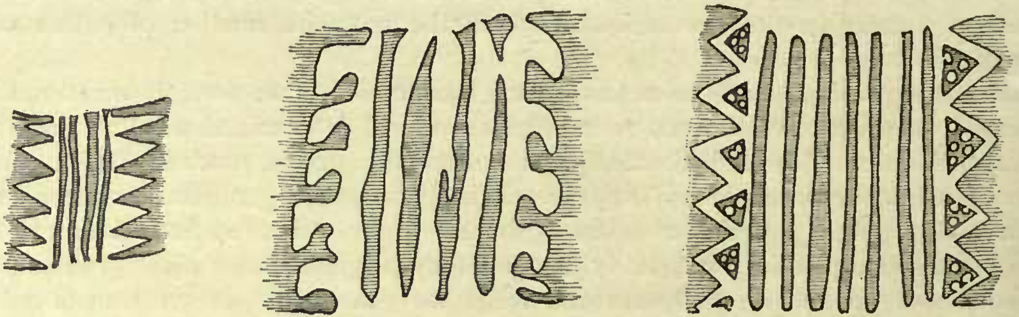

Fig. 381.—Dorsal-view (alligator) motives from vases of the lost color ware.

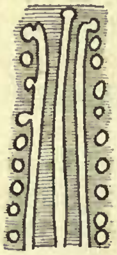

Fig. 382.—Dorsal-view motive as seen on the white line ware.

The ancient potter of Chiriqui was master of the brush in three distinct systems of painting: (1) The usual method of producing a figure or pattern by the direct application of one or more delineating colors — red, black, white, and in one variety of ware, an additional color, purple; (2) the lost color process, which was confined to a single rather large group of ware. It consisted of tracing the design in wax on the ground color, the application of a solid coat of black over the area to be ornamented, and immersing the vessel in hot water which melted the wax, removing with it the black from the design and thus leaving the latter in the color of the original ground; (3) Sparing the figure out of the ground, which was seldom employed, occurring only in the alligator, and the kindred polychrome group. The few examples of this technique evince much skill and ingenuity.

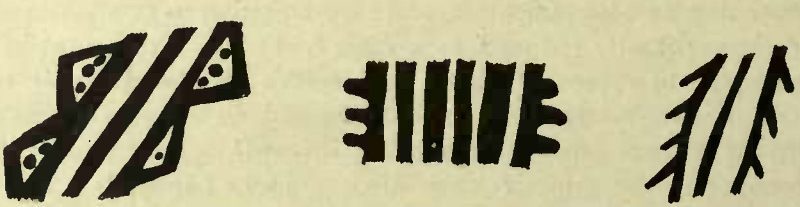

Fig. 383.—Dorsal-view motives from vases of the alligator ware.

Primitive metallurgy is well exemplified in the art of Chiriqui. It was still practised with presumably similar results at the time of the Spanish conquest. The first explorers were much impressed by the richness and abundance of the gold plaques, figurines, etc., used by the natives as amulets and ornaments. De Bry figures a group of native metal-workers in the act of casting gold images. The gold ornaments seen by Columbus in the Chiriqui lagoon were evidently similar to those taken from the graves during the past half century. The latter vary in fineness from nearly pure gold on the one hand to pure copper on the other. A small percentage of silver is present in some specimens. The alloys often appear to be natural. In some instances very effective figures were produced by slightly altering the natural shape of nuggets or masses of the native metal. A great majority of the pieces were cast, either wholly or in part. Some appear to have been constructed from a number of castings which were afterwards joined together. It is probable however that in some cases, at least, this appearance is alone due to the fact that the model was built up of a number of parts, the casting itself being in reality a unit. Others were cast as a unit, certain parts of which — as tail, wings or feet — being further flattened by hammering.

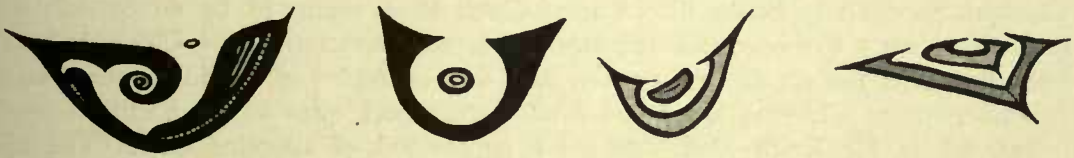

Fig. 384.—Dorsal-view motives from vases of the polychrome ware.

The secret of concentrating the gold on the surfaces in order to form a layer of brighter yellow than the interior, so well illustrated in specimens from the graves, seems to have been known also to the natives with whom the Europeans first came in contact, for Acosta says the Indians were able to produce a gold color by rubbing a low-grade alloy with the juice of a plant. Acosta probably got his information from Oviedo, the first inspector of "gold foundries"[1] in the New World, who refers to the same process.

As a vehicle of mythological and artistic expression, the gold images of Chiriqui are a worthy rival of the splendid series of pottery. The forms represented are from the animal world, more or less faithful representations of the bird, frog, jaguar, alligator, monkey and man being frequently met with.

The majority however are composite in character, possessing attributes of various animals, and are generally described by earlier writers as monsters. My endeavor to unravel the apparent tangle of mixed attributes has, I believe, led to the identification of a number of important Chiriquian deities.

As might be expected, some human attribute is common to practically all such divinities. One of the most important of these consists of a human body and extremities surmounted by an alligator's head. In order to emphasize the reptilian character, additional conventionalized alligators or alligator heads are attached to various parts of the figure or of its setting. To such an image I have given the name *alligator-god.* The conventionalized alligator head is often used, also, as a decorative and symbolic motive on other figures than those of the alligator-god I have demonstrated that the flattened horizontal bars, with their projecting attachments, placed at the head and feet of so many Chiriquian gold images, are traceable to multiple life forms—a common body with a head at each end (generally the alligator).

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[1] Irving. The life and voyages of Christopher Columbus, III, 359, 1892.

There is likewise a mythical image, part human and part bird, which I have named the *parrot-god*; to two other forms I have given the names *jaguar-god* and *crab-god.* A number of these deities are reproduced in earthenware, one of the most interesting being the jaguar-god. It should be recalled here that the finest example of ceramic decoration in the collection is a painted figure of the alligator-god. The gold images are all supplied with one or more rings for suspension. It is worthy of note that all human figurines and those with human attributes are so constructed as to present the front or ventral surface to view when suspended. This is true also of bird and monkey figurines, while the reverse is true of those representing all other animals, the dorsal view being the one exposed.

It is still too early to determine the precise geographical boundaries of Chiriquian culture. That these surpassed the present political boundaries of the province of Chiriqui, particularly in the direction of Costa Rica, seems to be an established fact. Numerous specimens of alligator ware, so characteristic of Chiriqui, have been found in the region of Terraba; and fine examples of armadillo ware, also characteristic of Chiriqui, are noted from Boruca and even as far north as Mercedes, where Mr. Keith also obtained a jaguar-god of alligator ware. The alligator motives so characteristic of certain classes of Chiriquian pottery are found on Costa Rican pottery that otherwise bears little resemblance to Chiriquian ware. Thus we find the dorsal-view motive, the scale-group and the spine motives, as well as the sigmoid scroll with a spot in the hollow of each curve, the last three occurring as far north as Nicoya. The genetic relationship between Chiriquian and Nicoyan culture is further emphasized by the evident kinship of the celt-shaped jade amulets from Las Guacas to the gold parrot-gods from the valleys of Rio General and Chiriqui Viejo.

The recent discovery near Terraba and at Mercedes of gold images representing the alligator- and jaguar-gods indicates that the cult of those deities once extended even beyond the waters of the Gulf of Dulce. Gold images in the Chiriquian technique occur, though rarely, even as far north as Nicaragua. The conventionalized treatment of the alligator points to a possible kinship between Chiriquian and Mexican mythology. Several favorite Chiriquian totemic animals appear in ancient Mayan codices. The characteristic jaguar metates and the two prevailing types of stone stools have been found in Costa Rican graves. There are also many points of resemblance in the graves themselves.

Archeological evidences of contact with and influence by South American civilization might be even more plentiful were the archeology of Colombia and Ecuador as well-known as that of Mexico and Central America. The lost color process, one of the characteristic Chiriquian methods of ceramic decoration, has been found on ancient pottery from Rio Bamba, Ecuador. Petroglyphs not unlike those of the *piedra pintal* are reported from Colombia and Venezuela (as well as from Porto Rico). Balboa's interview with Túmaco, who molded a figure of a lama in clay, should be recalled here as suggesting Isthmian intercourse with the far south. Of the ties that bind Chiriqui to the southern continent, the strongest hitherto revealed are linguistic.

With due allowance for the influences radiating from the great civilizations to the north and the south, the results of the present study point to the forces from within rather than to those from without, as being the chief factors in the development of Chiriquian culture, which contains many elements of fundamental importance to a complete history of primitive art.

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Plate II

Celts made of black fine-grained volcanic tufa. Page 23.

Figure *a.*—Chipped celt, the only polished areas being the facets forming the edge. $^2/_3$

Figure *b.*—Variant form of celt with marked constriction in the blade. $^2/_3$

Figure *c.*—Celt with three polished facets on each side. $^2/_3$

Figure *d.*—Large celt of the pecked type, in which the polishing extends along a median line from edge to pole. $^2/_3$

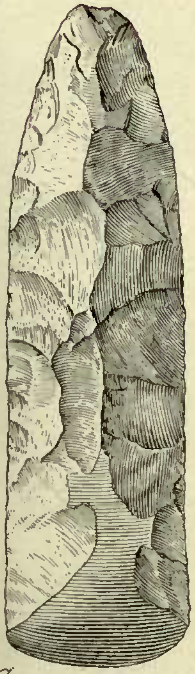
Figure *e.*—Small celt of the pecked type, only the bevels at the edge being polished. $^2/_3$

Figure *f.*—Typical celt with distinct demarcation between the pecked and the polished facets. $^2/_3$

Figure *g.*—Highly artistic celt with all facets completely polished. $^2/_3$

Figure *h.*—Celt in which the chipping has not been entirely removed by polishing. $^2/_3$

Figure *i.*—Variant form of celt with long straight edge. $^2/_3$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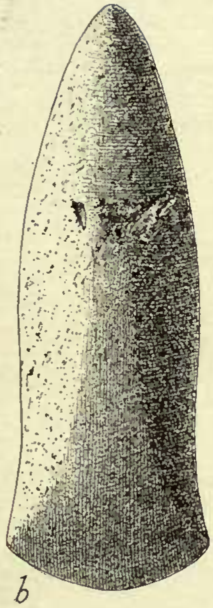
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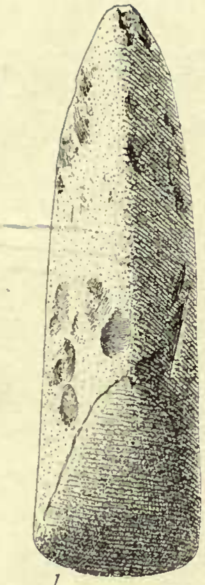
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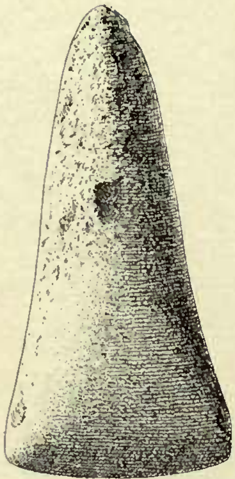
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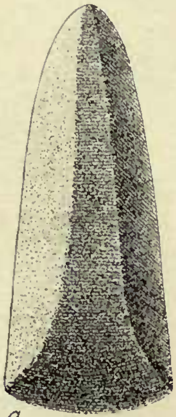
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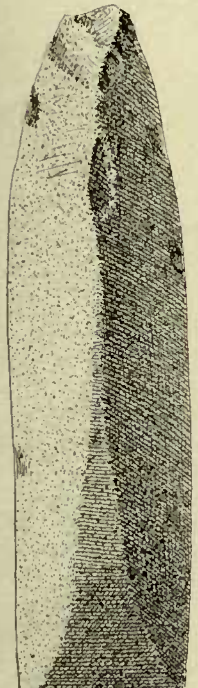
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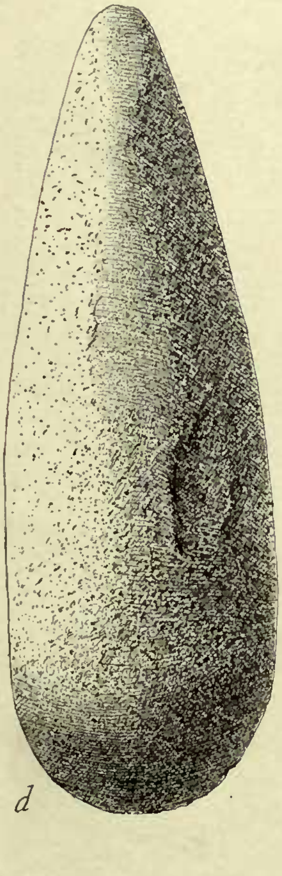
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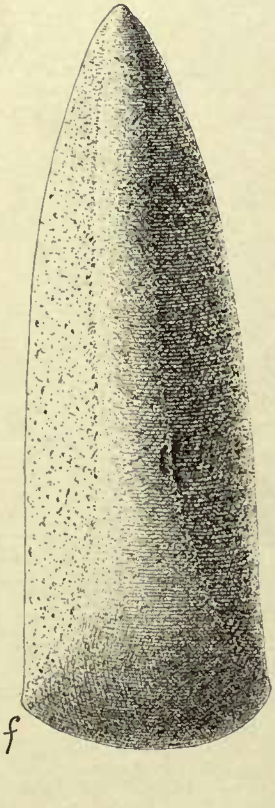
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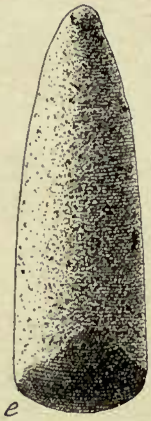
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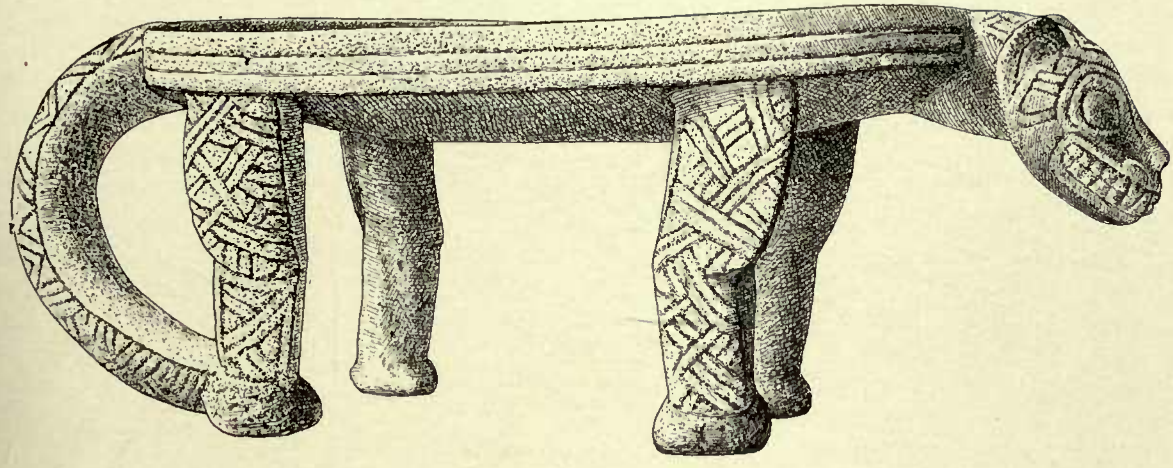
Plate III

Large fine jaguar metates of stone. Page 32.

Figure *a.*—Graceful metate with well modeled head and with original patterns on legs and tail. $^1/_4$

Figure *b.*—Large metate with broad oval plate and relatively short tail. $^1/_6$

Figure *c.*—Large metate with plain legs. $^1/_7$



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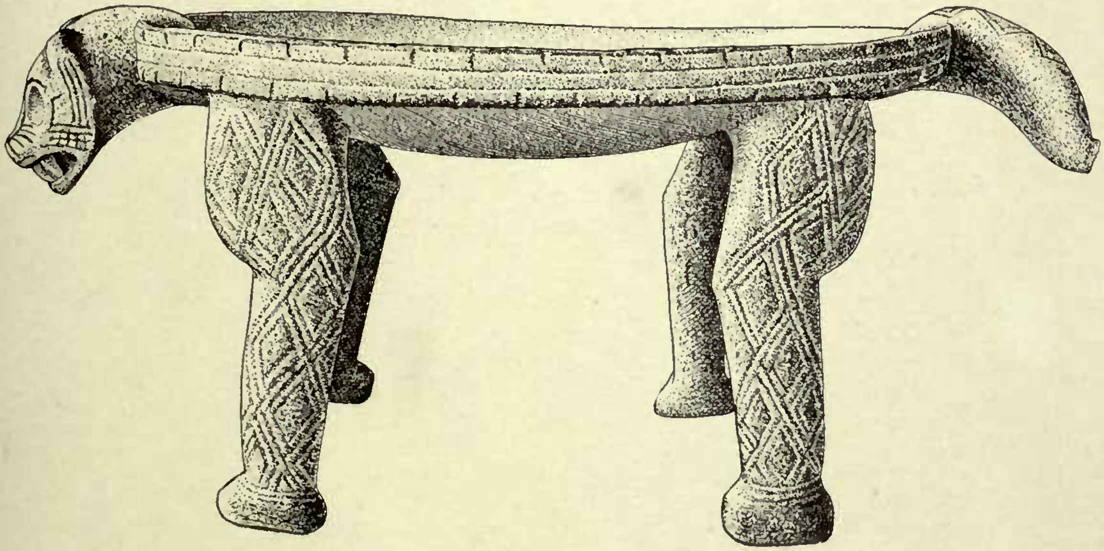

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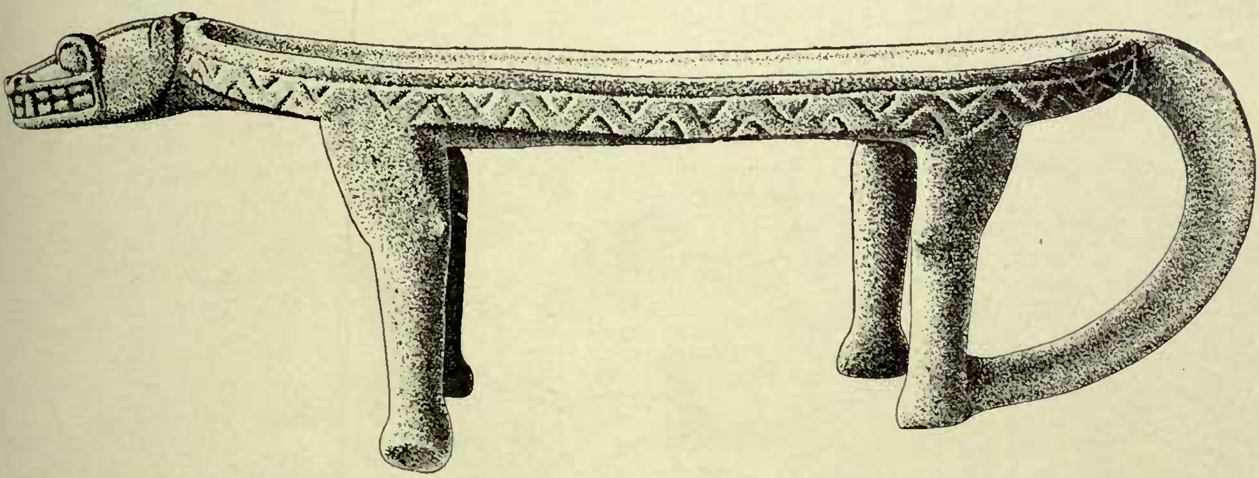


Plate IV

Series of stone stools. Page 35.

Figure *a.*—Rude stool with concave top, the margin being decorated with nine animal heads. $^1/_4$

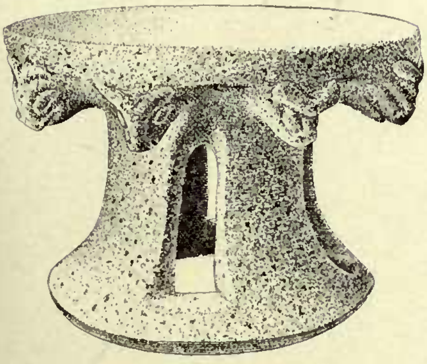
Figure *b.*—Stool with decorated border from which hang four jaguar-like heads. $^1/_4$

Figure *c.*—Tall stool supported by four round legs, near the top of which is a human head in relief. Thirty small animal heads encircle the seat; from Vivala. $^1/_4$

Figure *d.*—Low stool supported by four monkey-like figures. $^1/_4$

Figure *d'.*—Another view of the same stool, showing concealment of a mutilation. $^1/_4$

Figure *e.*—Stool with mortar-like top supported by monkey and human forms. $^1/_4$



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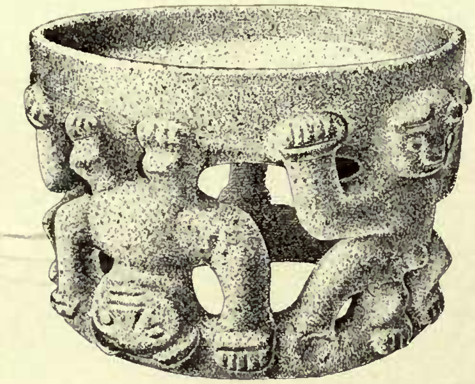

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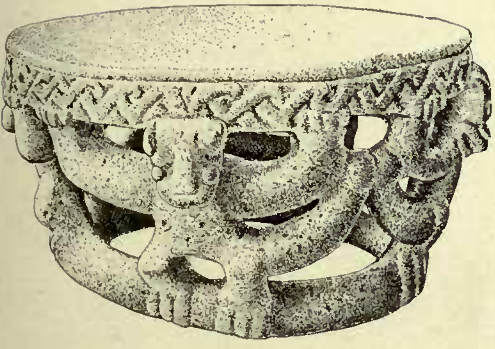

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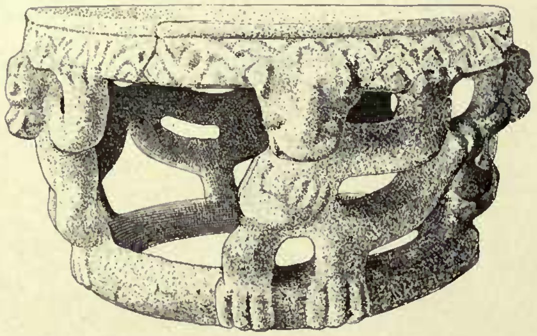

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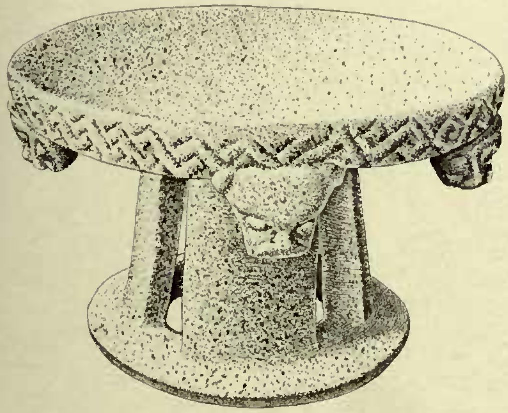

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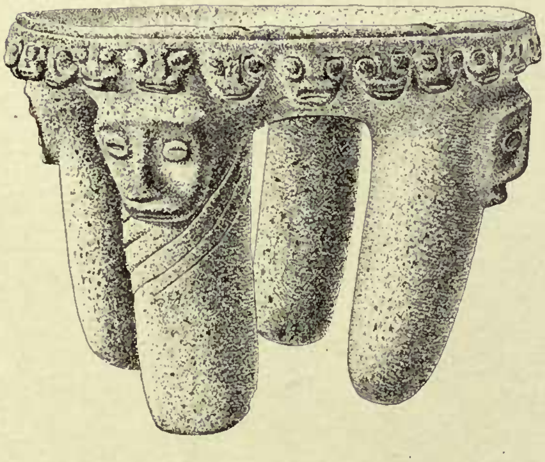

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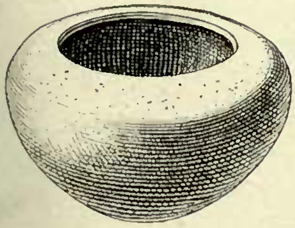
Plate V

Variations of the calabash type of vessel. Armadillo ware. Page 50.

Figure *a.*—Bowl with incurved rim. $^{1}/_{2}$
Figure *b.*—Bowl depressed vertically, with angular outlines; from Escaria. $^{2}/_{5}$
Figure *c.*—Bowl with vertical sides; from Bugavita. $^{1}/_{2}$
Figure *d.*—Bowl-shaped vase with vertical rim; from Divala. $^{1}/_{3}$
Figure *e.*—Tall vase with pointed base and flaring rim; from Divala. $^{1}/_{2}$
Figure *f.*—Vase with flaring rim and recurved lip. $^{1}/_{2}$
Figure *g.*—Vase with squarish lip around circular opening. $^{1}/_{2}$
Figure *h.*—Vase with collar; from Divala. $^{1}/_{2}$



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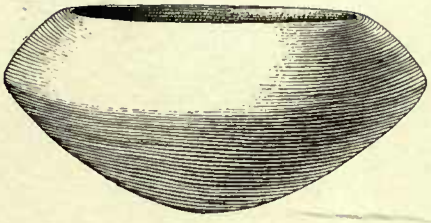

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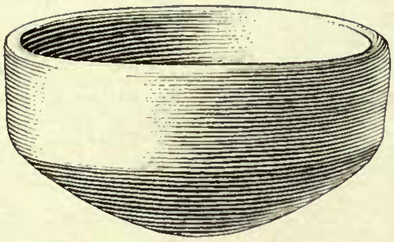

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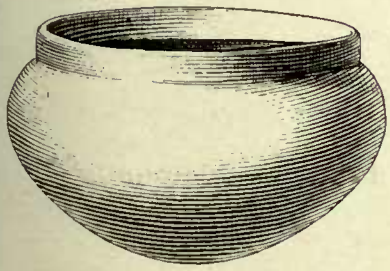

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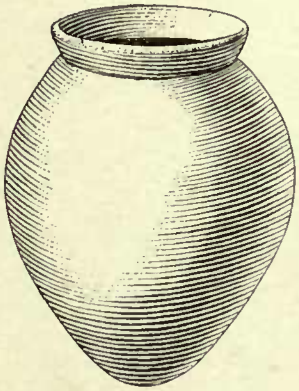

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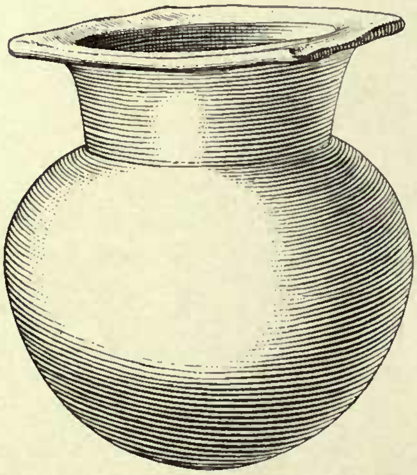

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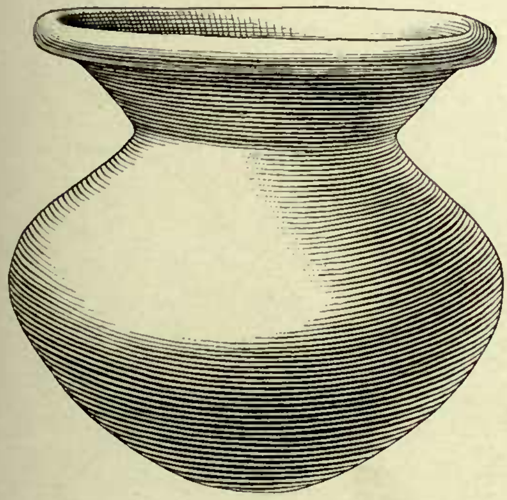

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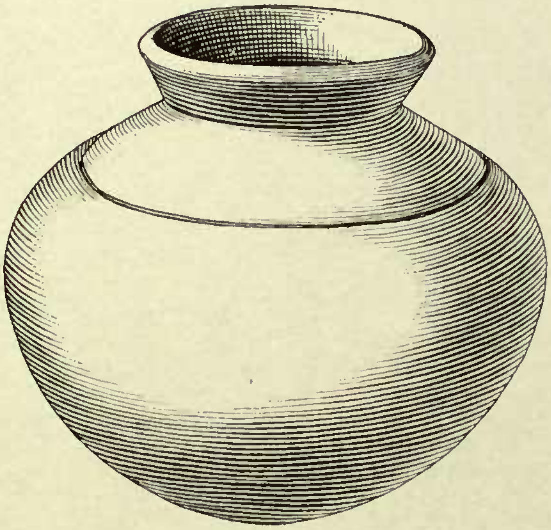

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Plate VI

Series of tripods. Armadillo ware. Page 51.

Figure *a.*—Tripod with angular bowl and supports slit laterally. 1/2

Figure *b.*—Rare double tripod, the connection serving as a rattle. 2/5

Figure *c.*—Tripod, the supports of which show each four vertical slits; from Bugavita. 1/2

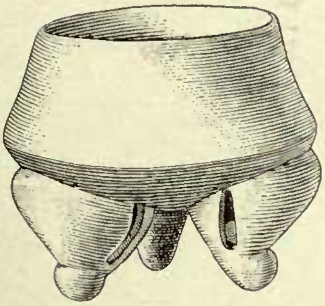
Figure *d.*—Tripod with multiple slits in supports. 1/2

Figure *e.*—Artistic tripod much discolored by grease and smoke. 1/2

Figure *f.*—Tripod with animal head on the shoulder and multiple punctures in supports; from Bugavita. 1/2

Figure *g.*—Angular bowl with multiple punctures in supports; from Bugavita. 1/2

Figure *h.*—Tripod with multiple punctures in supports; from Escaria. 1/2



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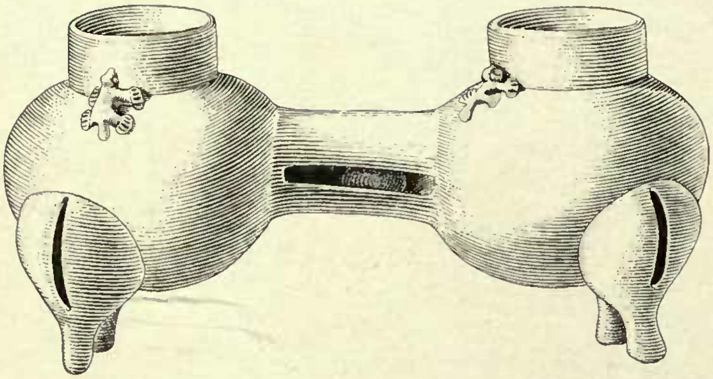

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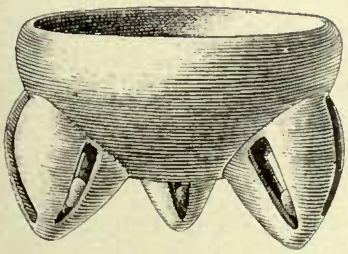

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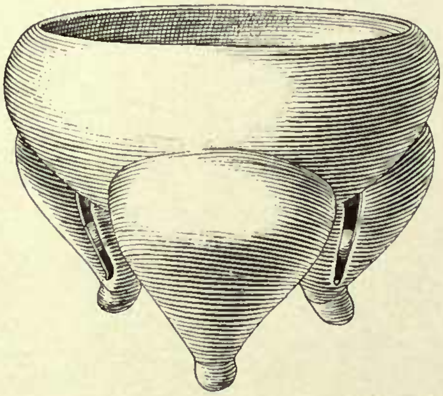

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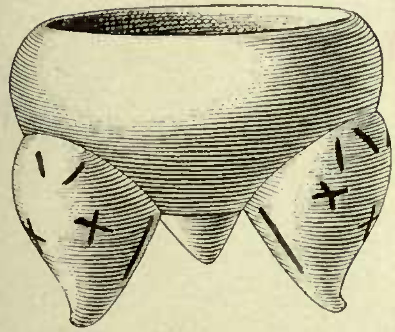

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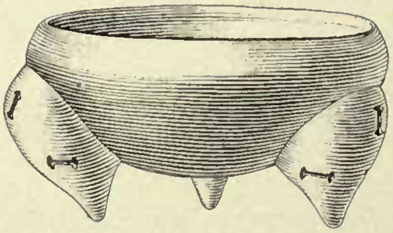

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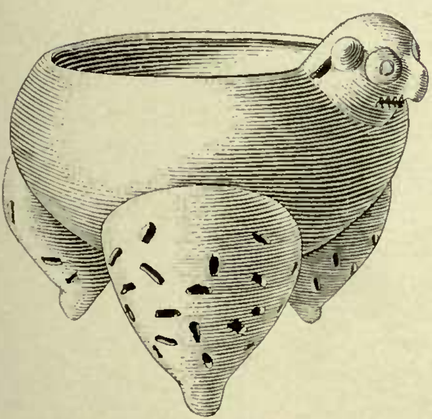

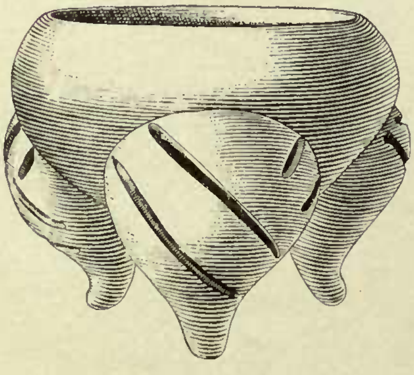

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Plate VII

Series of tripods in which the supports suggest the human form.
Armadillo ware. Pages 52, 53.

Figure *a.*—Tripod showing only slight modification of an otherwise plain support. 1/2

Figure *b.*—Tripod with bifurcated supports representing human legs. 1/2

Figure *c.*—Tripod, the supports of which are decorated with the human head and extremities. 1/2

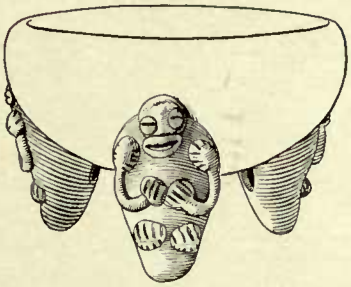
Figure *d.*—Tripod, each support of which is decorated with two human heads and arms. 1/2

Figure *e.*—Tripod with supports but slightly altered to suggest the human form. 1/2

Figure *f.*—Artistic tripod in which the human form of support is recognized by the loin-cloth. 1/2

Figure *g.*—Tripod in which the loin-cloth is the distinguishing feature of the human form of support; from El Banco. 1/2

Figure *h.*—Tripod whose supports are grotesque representations of the human form; from Bugavita. 1/2



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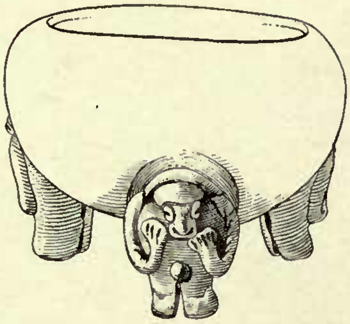

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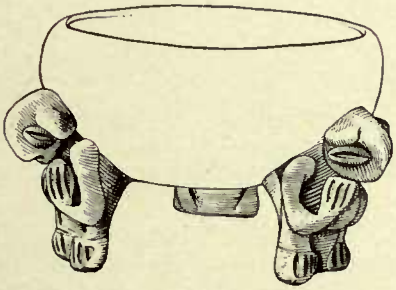

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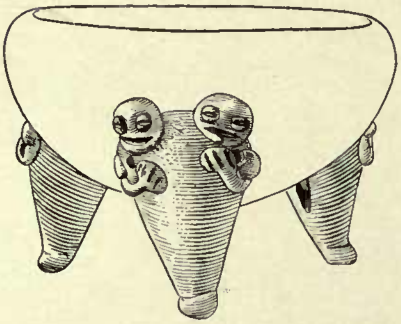

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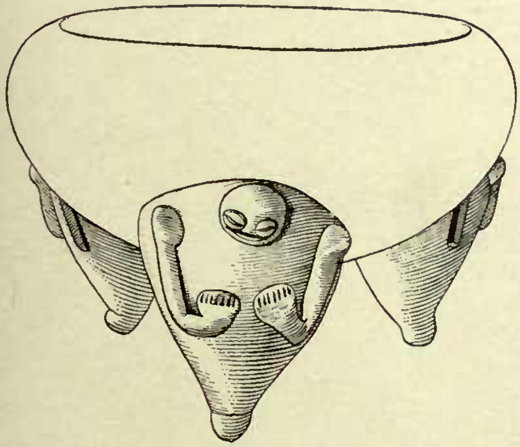

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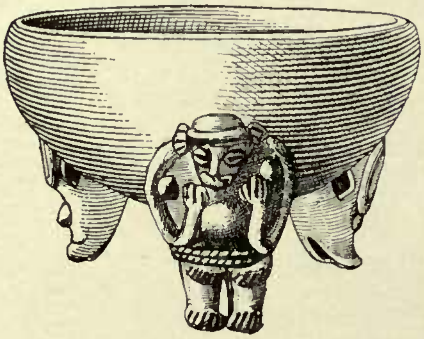

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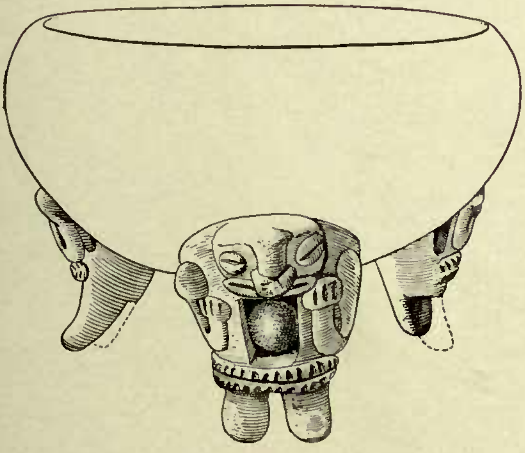


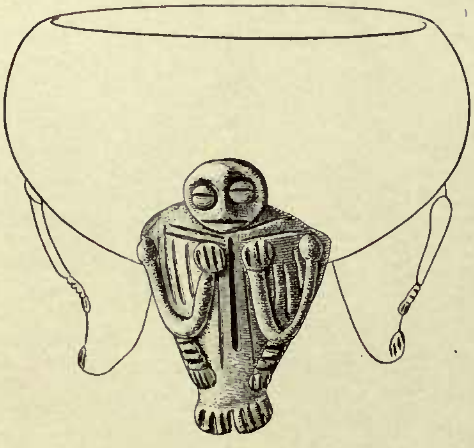


Plate VIII

Tripods with grotesque heads serving as shoulder ornaments.
Armadillo ware. Page 53.

Figure *a.*—Tripod with a single grotesque figure attached to the rim. $^1/_2$

Figure *b.*—Tripod with two animal heads attached to the rim. $^1/_2$

Figure *c.*—Bowl with animal head and tail decorating the rim and with four supports, the whole representing a zoömorphic unit. $^2/_5$

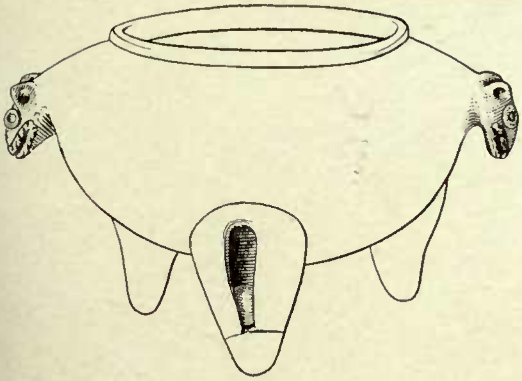
Figure *d.*—Tripod with animal figures resting on extensions of the rim; from Bugavita. $^2/_5$

Figure *e.*—Tripod with entire animal forms as shoulder ornaments. $^2/_5$

Figure *f.*—Tripod with the frog as shoulder ornaments; from Bugavita. $^1/_2$

Figure *g.*—Tripod, the body of which is somewhat altered by the representation of animal heads at each end. $^1/_2$

Figure *h.*—Tripod with zoömorphic features encircling the equatorial zone; from Bugavita. $^1/_2$



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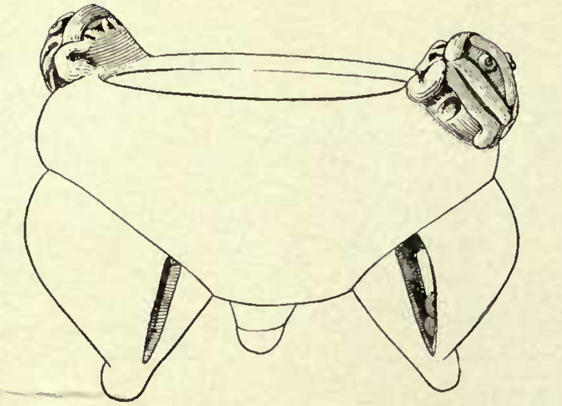

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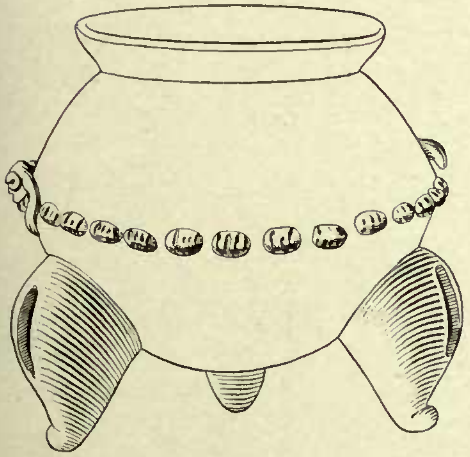

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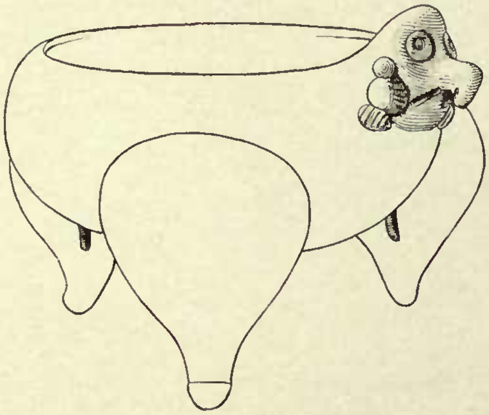

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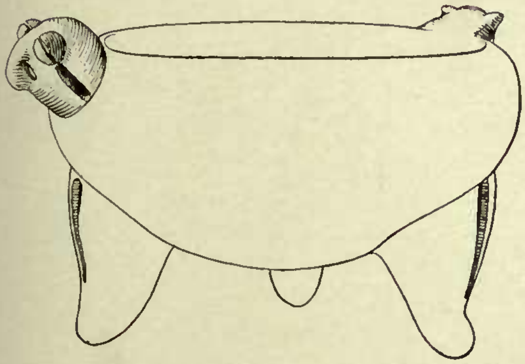

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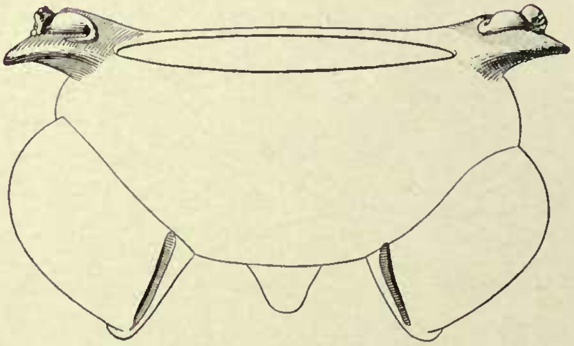

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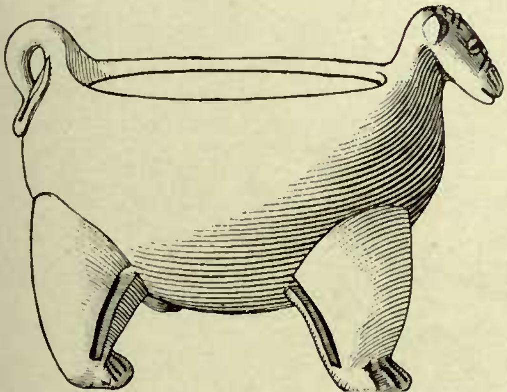


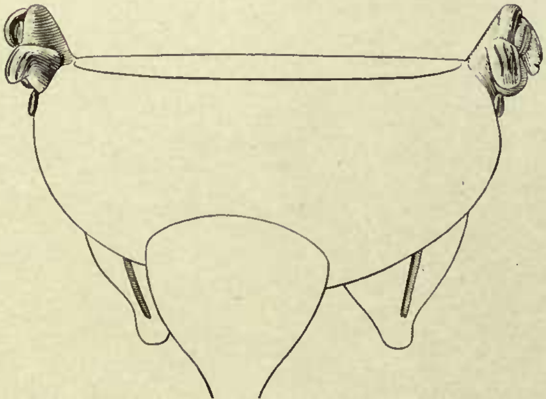


Plate IX

Series of tripods, the supports of which represent the armadillo.
Armadillo ware. Pages 58, 59.

Figure *a.*—Angular bowl with supports representing the armadillo in the round. $^1/_2$

Figure *b.*—Angular bowl with supports incised to represent the carapace, the head and feet being added. $^1/_2$

Figure *c.*—Bowl in whose supports the armadillo is recognized by incisions for the carapace, and incised nodes for the forefeet. $^1/_2$

Figure *d.*—Bell-shaped bowl supported by conventionalized forms of the armadillo, recognized by head and carapace. $^1/_2$

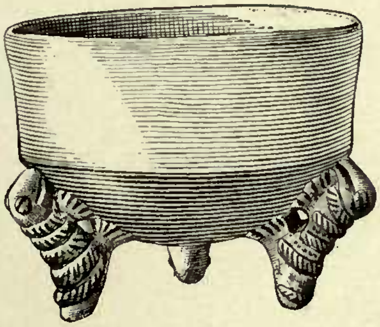
Figure *e.*—Tripod, the human nailprints on the supports of which represent the carapace of the armadillo. $^1/_2$

Figure *f.*—Angular bowl with supports representing the armadillo. $^1/_2$

Figure *g.*—Tripod in whose supports the armadillo is recognized in the plain nodes representing head and forefeet. $^1/_2$

Figure *h.*—Tripod bowl in whose supports the armadillo is recognized by a much reduced head only; from Divala. $^1/_2$

Figure *i.*—Tripod with simple supports horizontally incised to represent the carapace. $^1/_2$



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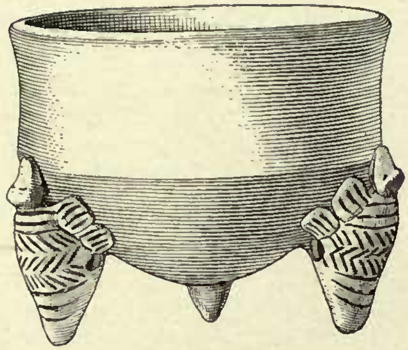

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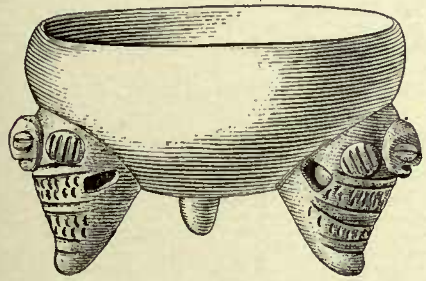

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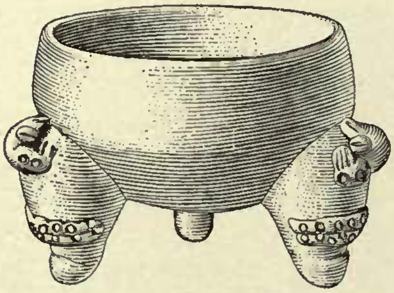

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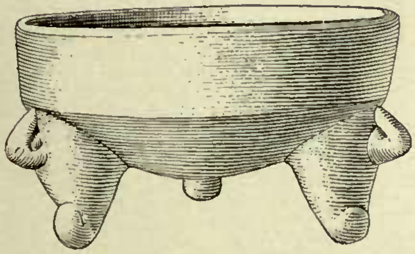

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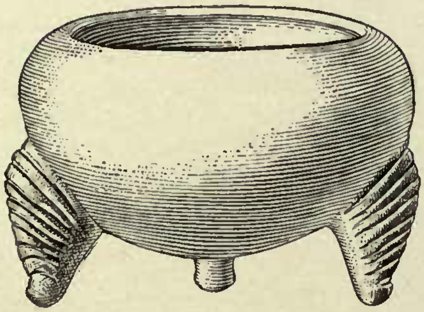

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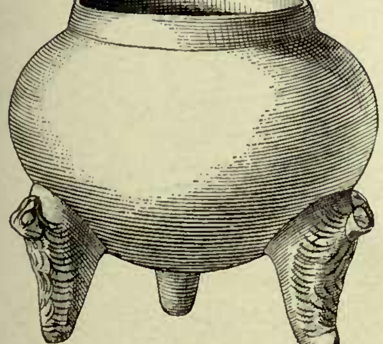

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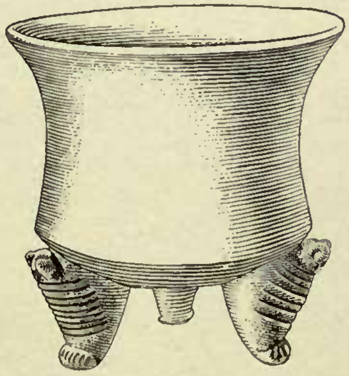

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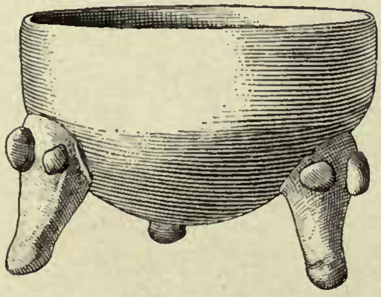

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Plate X

Series of vases in which the armadillo head is employed as a shoulder ornament. Armadillo ware. Page 60.

Figure *a.*—Vase with the armadillo head and forelegs as shoulder ornaments. $^2/_5$

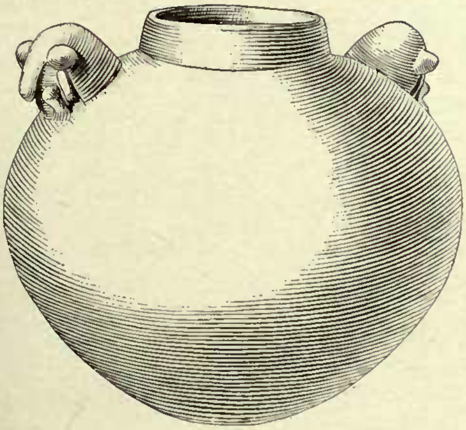
Figure *b.*—Vase with armadillo heads as shoulder ornaments, the forelegs being reduced to mere nodes; from Bugavita. $^1/_2$

Figure *c.*—Vase showing the armadillo head and conventionalized foot as shoulder ornaments. $^1/_2$

Figure *d.*—Vase with large simplified armadillo heads as shoulder ornaments, the conventionalized foot being absent; from Bugavita. $^1/_2$

Figure *e.*—Vase in which the armadillo head and feet employed as shoulder ornaments are much reduced; from Bugavita. $^2/_5$

Figure *f.*—Vase showing extremely reduced and simplified armadillo heads as shoulder ornaments. $^1/_2$



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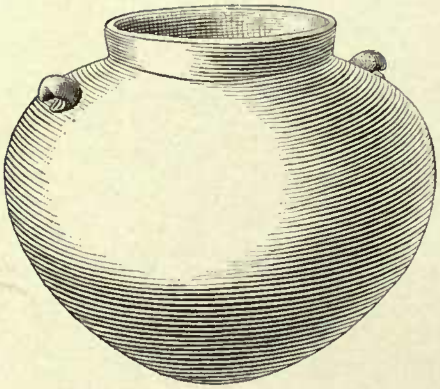

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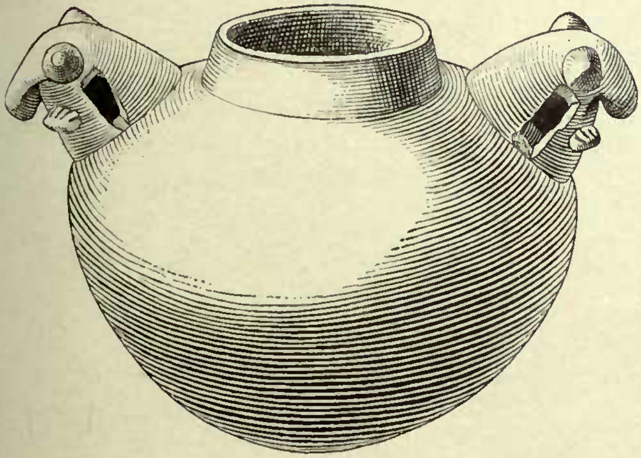

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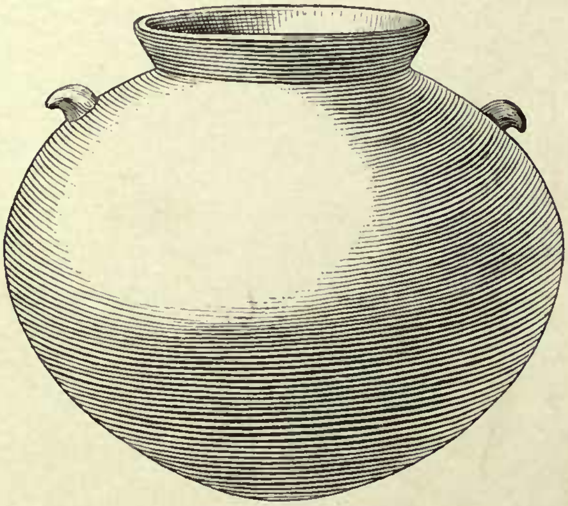

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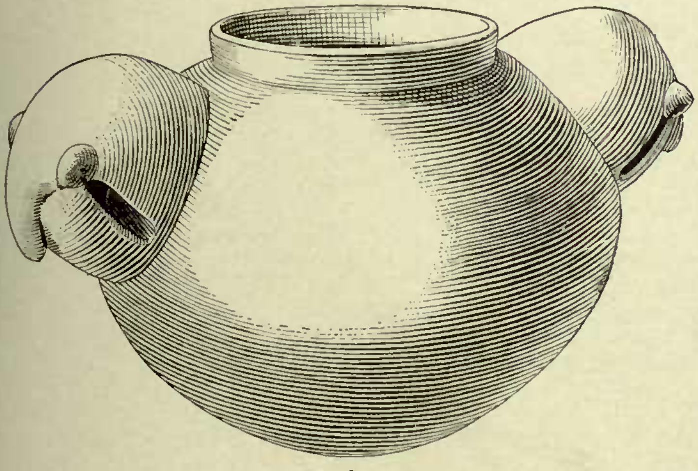

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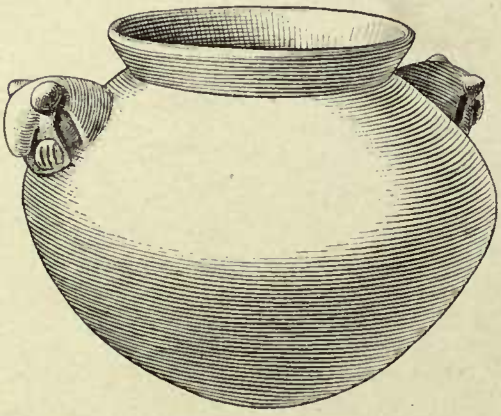

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Plate XI

Series of vases in which the entire armadillo is employed as a shoulder decoration. Armadillo ware. Page 61.

Figure *a.*—Vase, the armadillo serving as shoulder ornaments, all three divisions of the carapace being represented. $^1/_2$

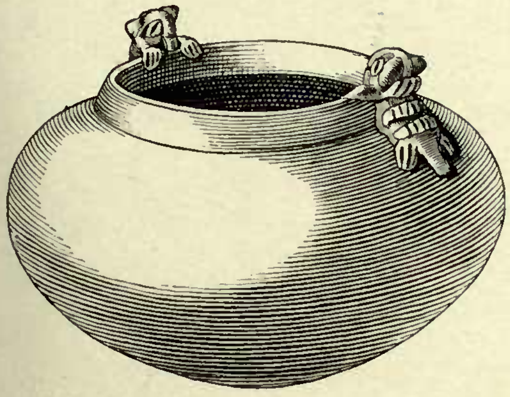
Figure *b.*—Small vase in which the armadillo is placed lower on the shoulder and in a burrowing attitude; from Escaria. $^1/_2$

Figure *c.*—Vase showing the characteristic burrowing attitude of the armadillo. $^1/_2$

Figure *d.*—Upper portion of vase showing that the armadillo foot and the incised nodes on the neck of the vase are identical. $^1/_2$

Figure *e.*—Vase in which the shoulder ornaments represent the armadillo with characteristic incised tail. $^1/_2$

Figure *f.*—Vase with the armadillo as shoulder ornaments and with the tail motive as a neck ornament. $^1/_2$



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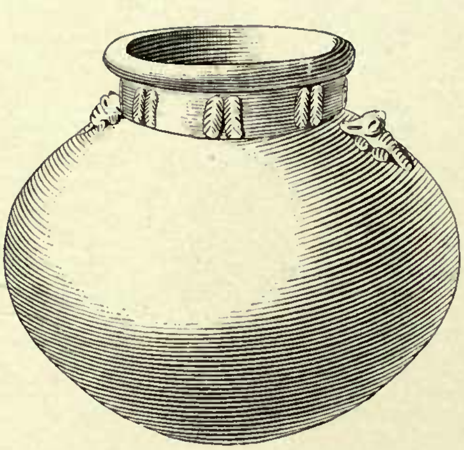

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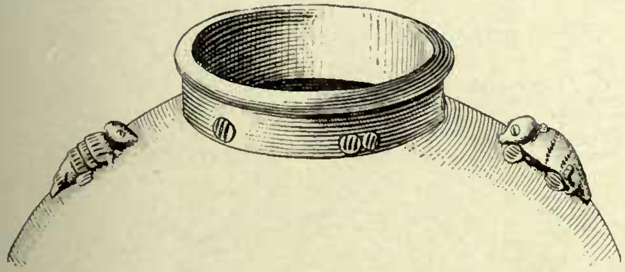

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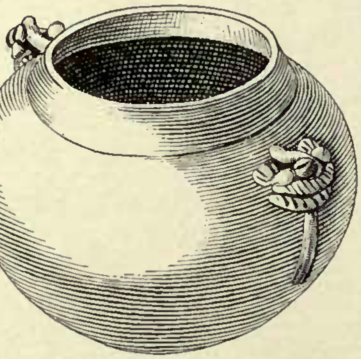

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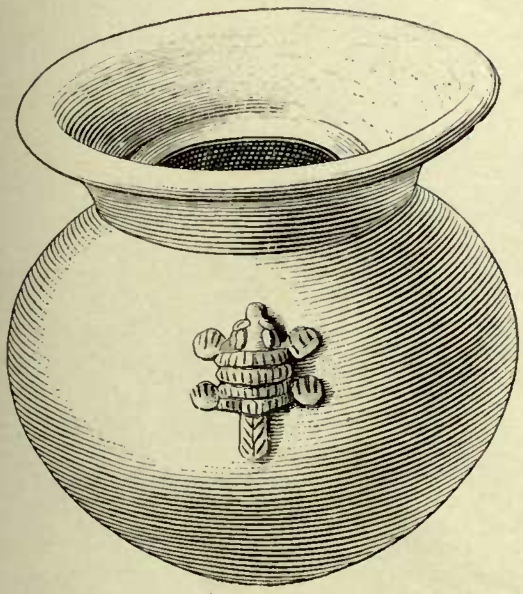

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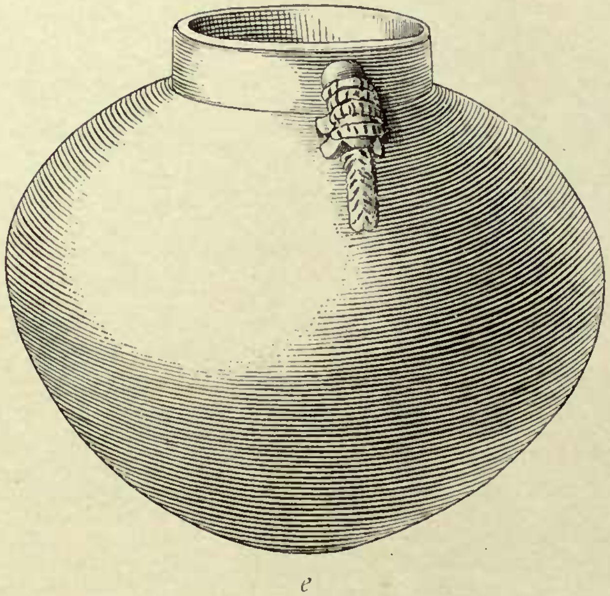

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Plate XII

Series of collared and double-mouthed vases. Armadillo ware. Page 63.

Figure *a.*—Collared vase with incised zone. $^1/_2$

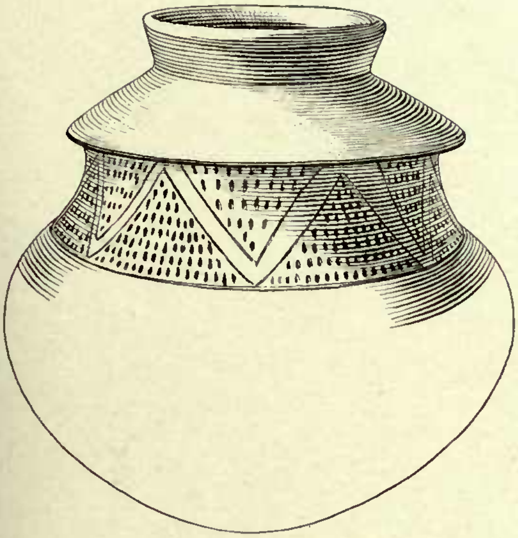
Figure *b.*—Collared vase. $^1/_2$

Figure *c.*—Double-mouthed vase showing that the eyes and carapace of the armadillo are identical with the decorative motives on the necks of the vase; from Bugavita.

Figure *d.*—Plain double-mouthed vase, in which the paired necks are set rather far apart. $^1/_2$

Figure *e.*—Double vessel in which the necks are fused. $^1/_2$

Figure *f.*—Tripod vase with shoulder ornaments representing the entire armadillo; from Escaria. $^1/_2$



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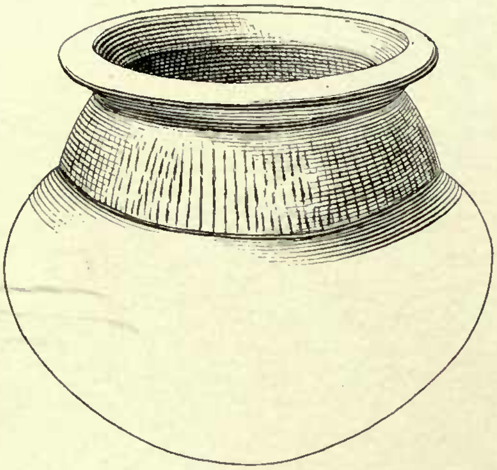

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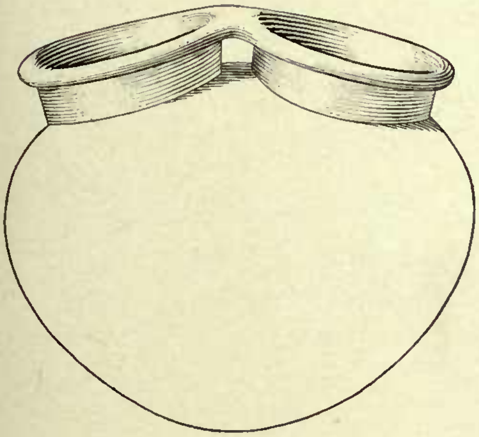

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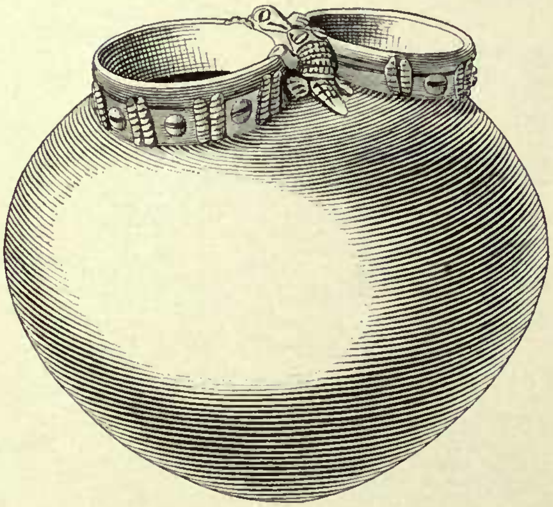

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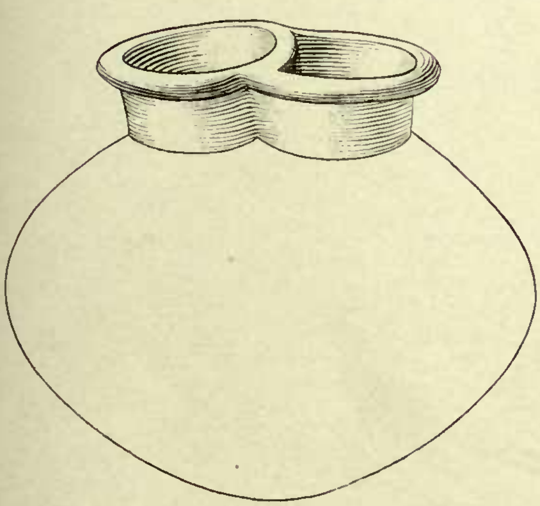

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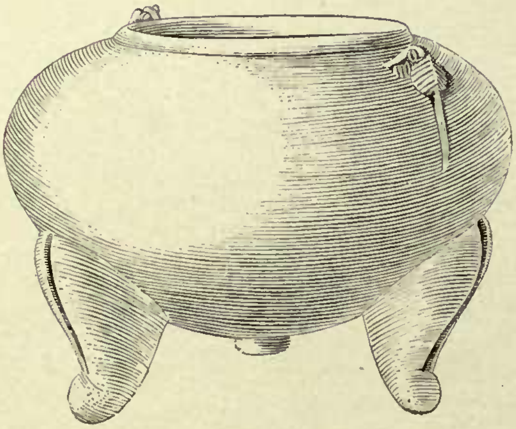

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Plate XIII

Series of vases in which the handles are decorated with armadillo motives.
Armadillo ware. Page 64.

Figure *a.*—Vase, the paired handles of which represent the armadillo. $^1/_2$

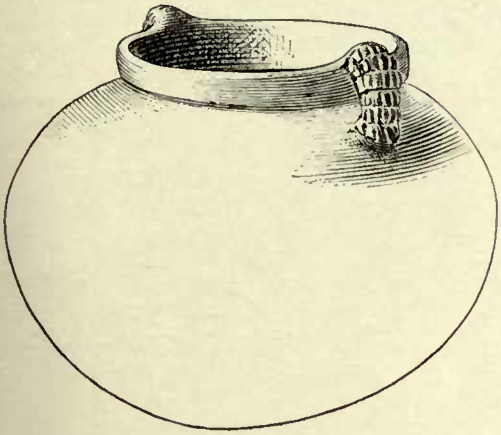
Figure *b.*—Vase with paired handles entirely covered with carapace motives. $^1/_2$

Figure *c.*—Vase in which the paired handles are ornament with nodes and fillets representing armadillo motives. $^1/_2$

Figure *d.*—Vase with paired handles, on which the armadillo motives are much simplified. $^1/_2$

Figure *e.*—Vase with paired handles simply incised to represent the carapace. $^1/_2$

Figure *f.*—Vase with a single handle, the neck and the handle being decorated with applied tail symbols and eye symbols. $^1/_2$



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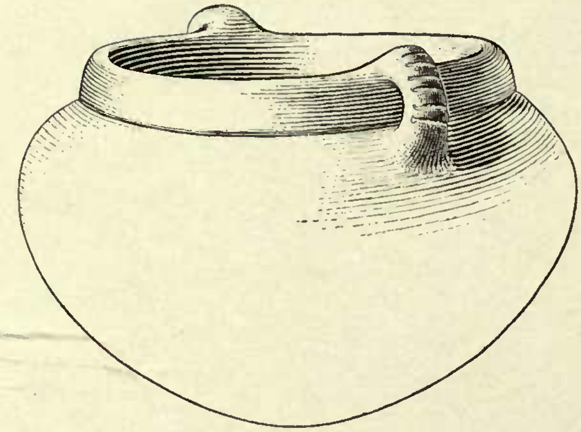

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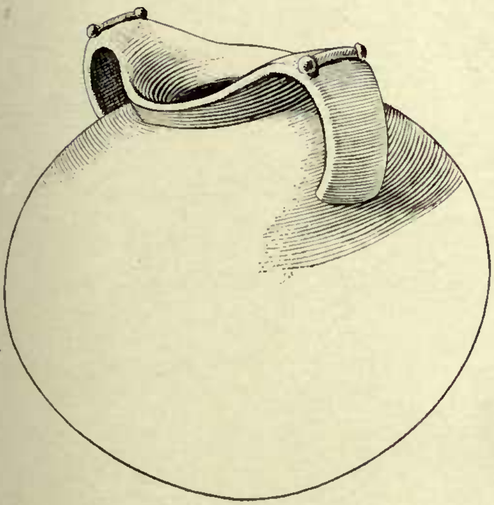

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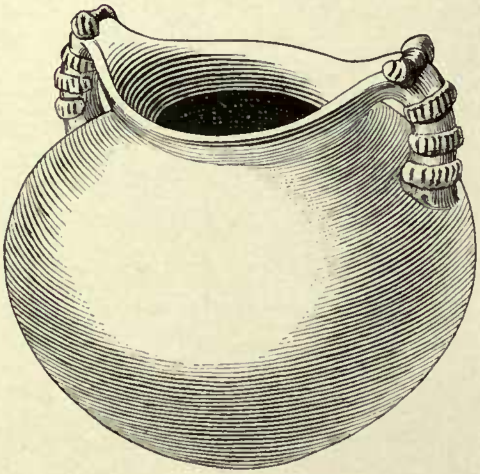

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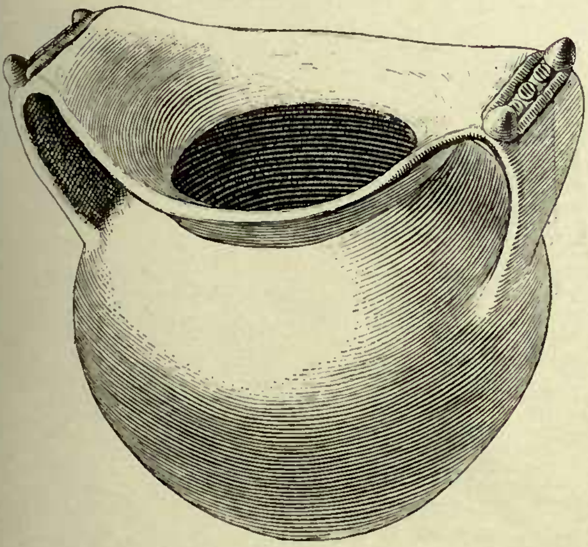

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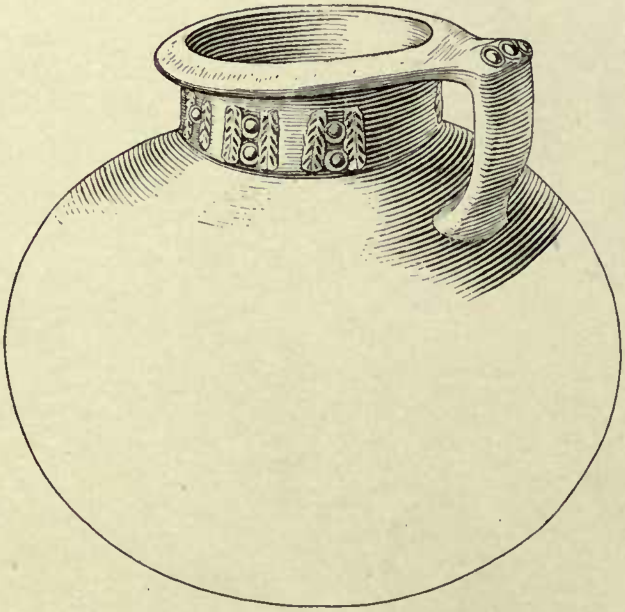


f

Plate XIV

Series of vases in which the frog is employed as shoulder ornaments.
Armadillo ware. Page 67.

Figure *a.*—Vase showing admirable adaptation of ornament to form; from Jacu. 1/2

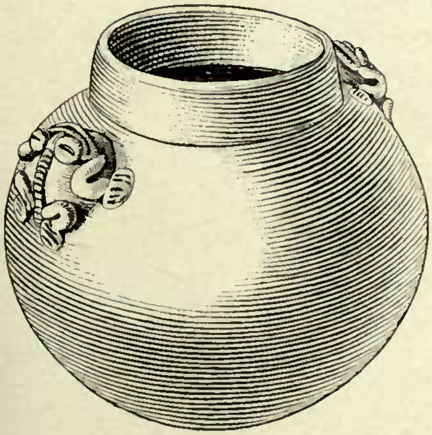
Figure *b.*—Vase on which the representation of the frog, especially its flattened feet, suggests the technique in metal rather than in clay. 1/2

Figure *c.*—Vase with a pair of frogs on each shoulder, the hind feet being represented by a flat band of clay. 1/2

Figure *d.*—Beautifully modeled vase in which the metal-like frogs serving as shoulder ornaments cover oval openings in the wall of the vase. 1/2

Figure *e.*—Vase with elongated neck, and shoulder ornaments representing the frog. 1/3

Figure *f.*—Small vase with shoulder ornaments representing a ceramic type of frog. 1/2



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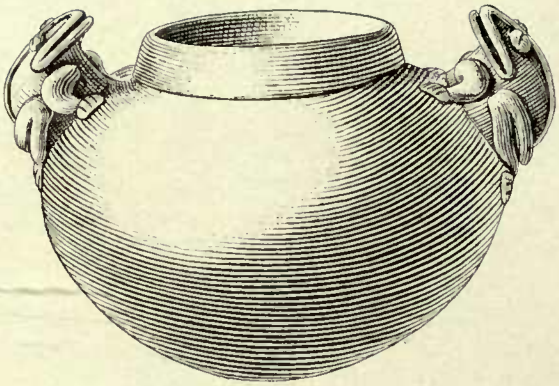

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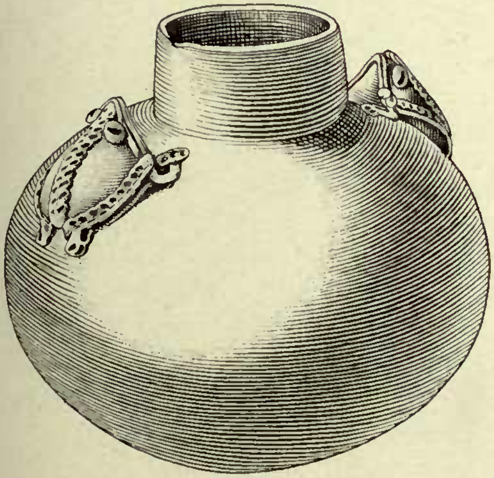

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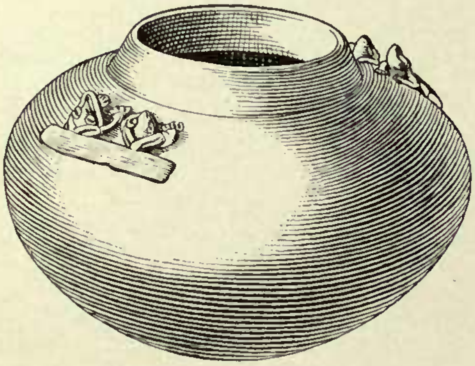

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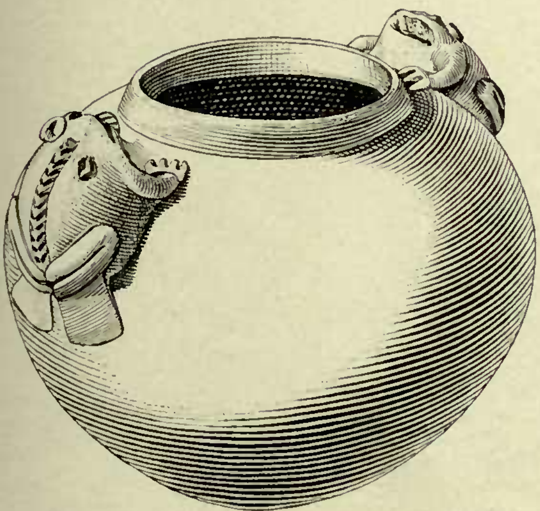

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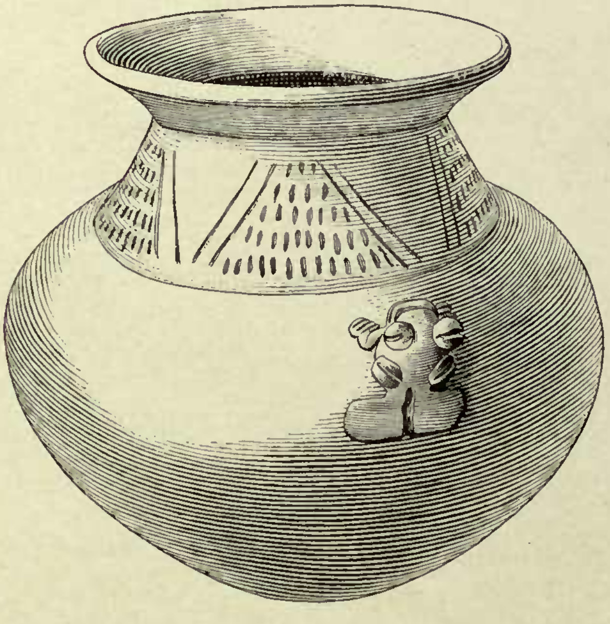


b

Plate XV

Series of vases showing a variety of plastic shoulder ornaments.
Armadillo ware. Pages 69, 70.

Figure *a.*—Vase with monkeys serving as shoulder ornaments. $^{1}/_{2}$

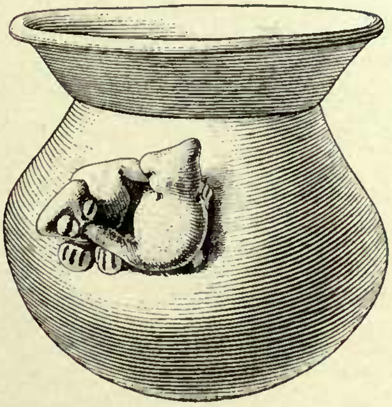
Figure *b.*—Vase with shoulder ornaments representing the lizard. $^{1}/_{3}$

Figure *c.*—Vase with two catlike creatures figuring as shoulder ornaments. $^{1}/_{2}$

Figure *d.*—Remarkable form of vase in which the diameter of the rim is much greater than that of the body. $^{1}/_{2}$

Figure *e.*—Vase, the shoulder ornaments of which resemble the armadillo. $^{1}/_{2}$

Figure *f.*—Vase with squarish lip and with shoulder ornaments representing a form of bird. $^{2}/_{5}$



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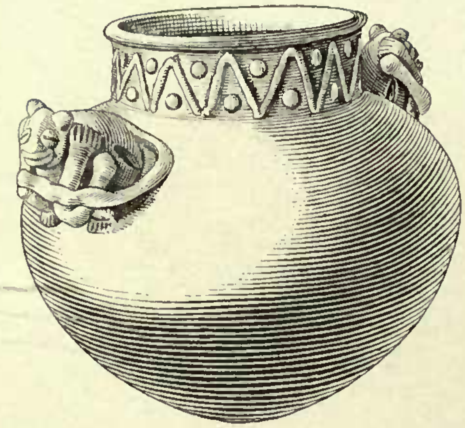

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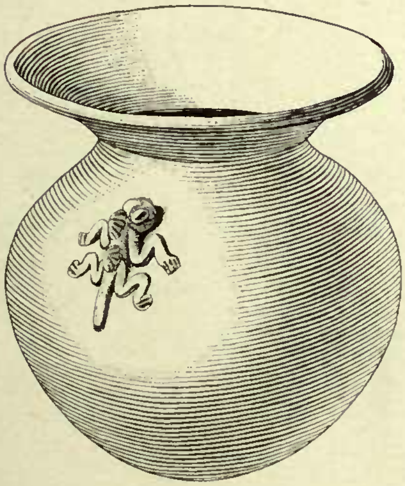

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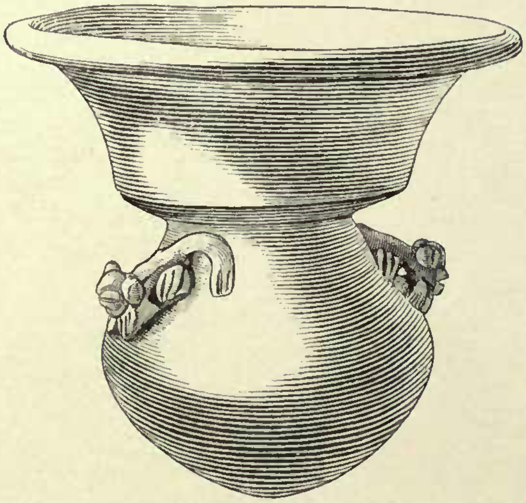

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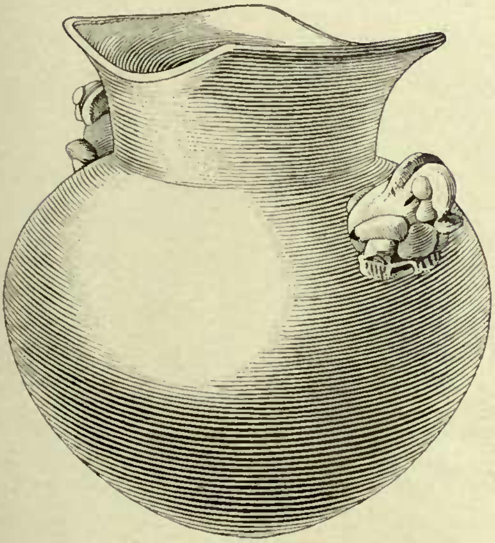

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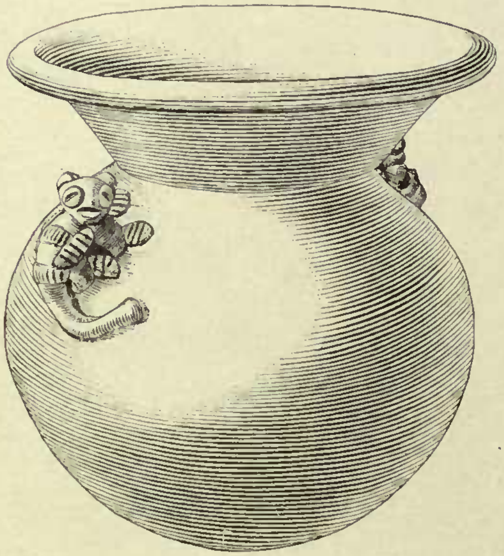


e

Plate XVI

Series of vase forms selected from the salmon-colored variety of armadillo ware. Page 71.

Figure *a.*—Vase with shoulder ornaments that may represent the armadillo head encircled by the carapace motive. $^1/_2$

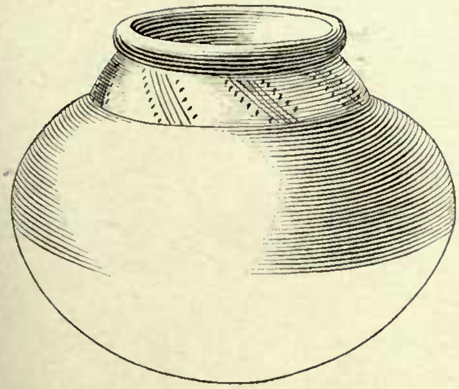
Figure *b.*— Rare vase with loop handles and flat bottom. $^1/_3$

Figure *c.*—Vase with elongated neck and plastic shoulder ornaments; from Bugavita. $^1/_2$

Figure *d.*—Vase with bulging collar on which the plastic shoulder ornaments rest; from Vivala. $^1/_2$

Figure *e.*—Vase with incised collar and no shoulder ornaments. $^2/_5$

Figure *f.*—Vase in which the plastic figures serve as handles connecting the rim and shoulder. $^1/_2$



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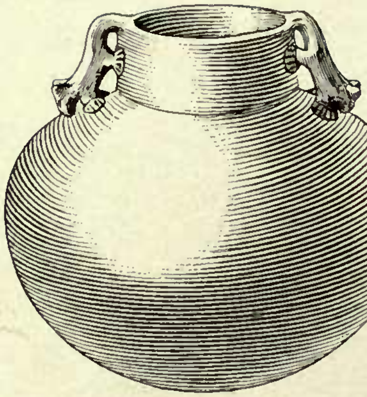

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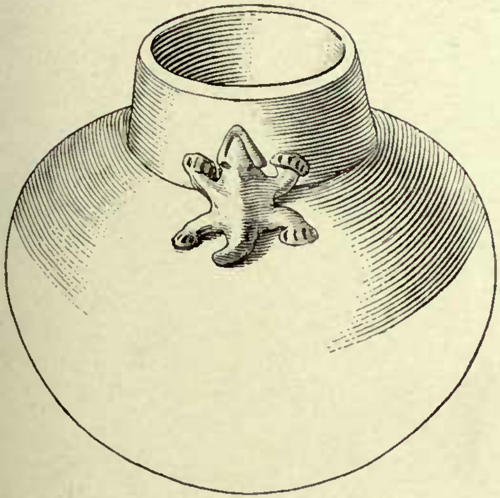

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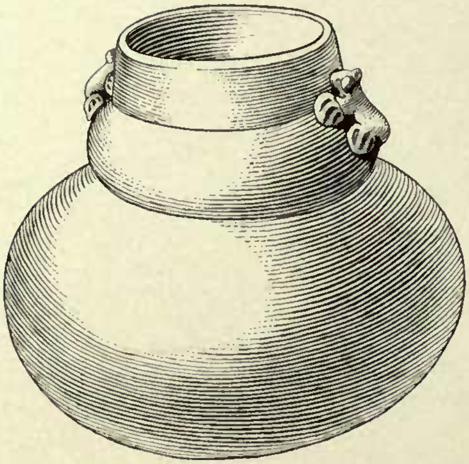

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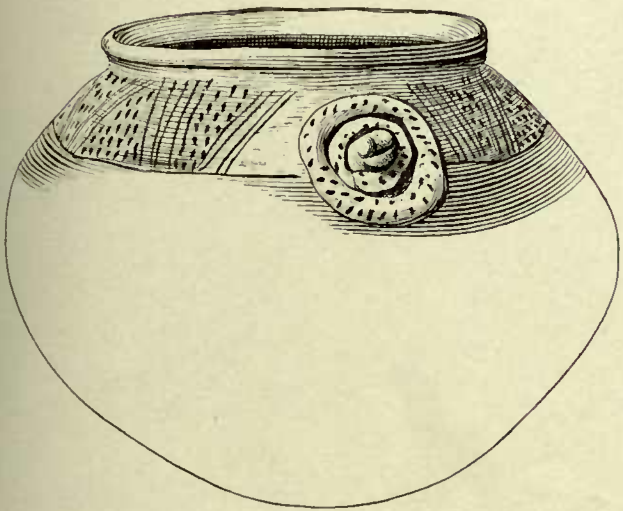

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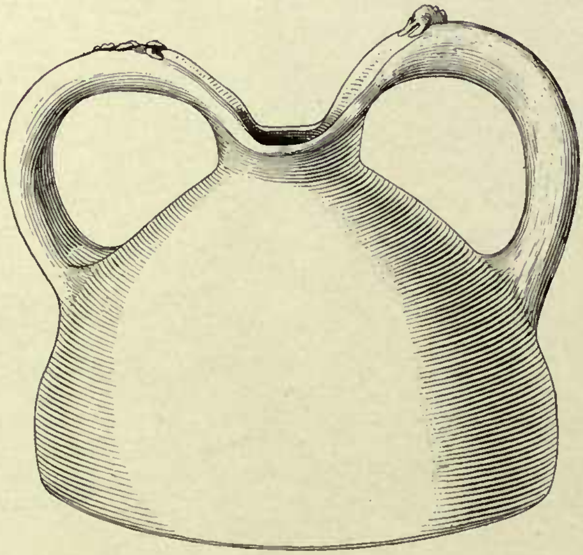

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Plate XVII

Typical examples of serpent ware. Pages 72, 73.

Figure *a*.—Characteristic vase with handles, the incised decoration representing a two-headed serpent with forked tongue; from Vivala (not Divala). $^{3}/_{4}$

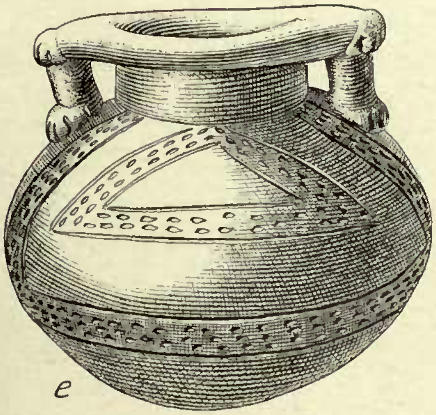
Figure *b*.—Vase in which the incised two-headed serpent encircles the body nearly three times. $^{3}/_{4}$

Figure *c*.—Vase on which the serpent motive survives as a purely geometric pattern; from Divala. $^{3}/_{4}$

Figure *d*.—Vase ornamented with geometric serpent symbols; from Divala. $^{3}/_{4}$

Figure *e*.—Vase with incised geometric decorations derived from the serpent. $^{3}/_{4}$

Figure *f*.—Vase with no incised decorations. $^{1}/_{2}$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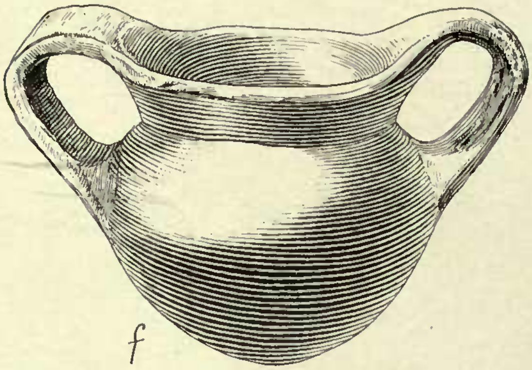
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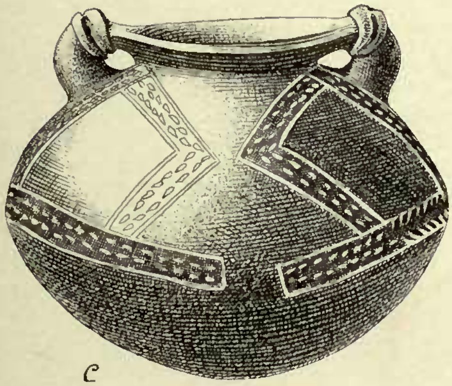
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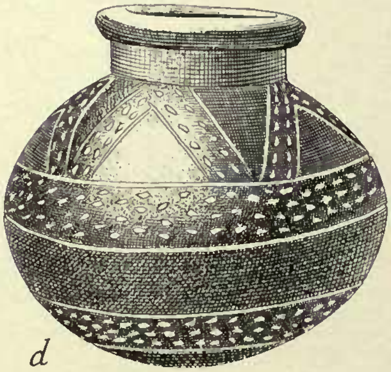
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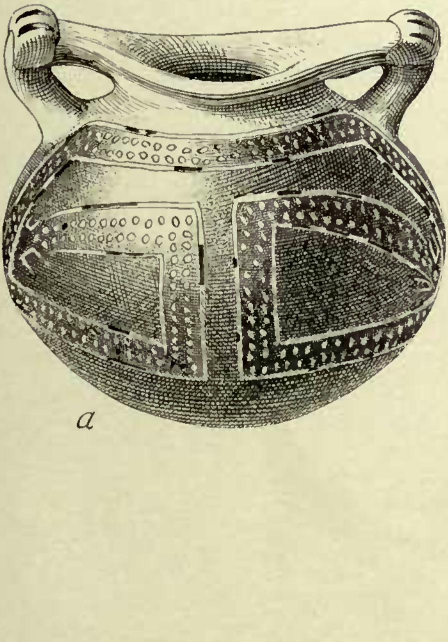
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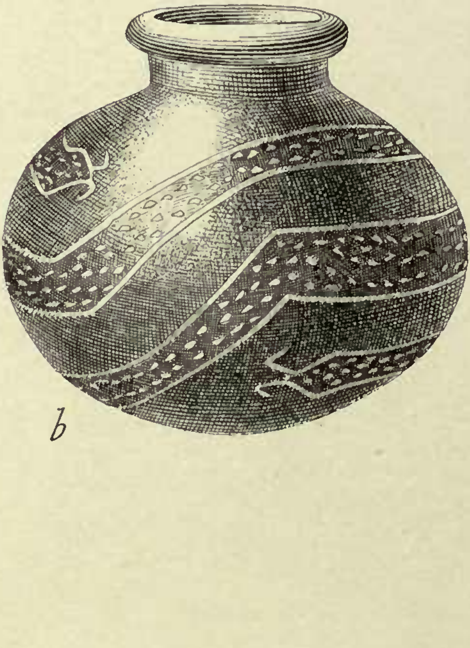
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Plate XVIII

Series of typical unpainted handled vases in which armadillo motives predominate. Page 74.

Figure *a.*—Vase in which the handles represent the armadillo. $^2/_5$

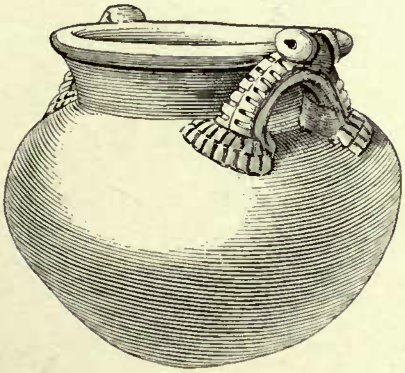
Figure *b.*—Vase, the handles of which are decorated with armadillo motives. $^2/_5$

Figure *c.*—Vase in which the handle is reduced to a mere knob, only the eyes and the ventrally placed carapace of the armadillo being represented. $^2/_5$

Figure *d.*—Vase in which the reduced horizontal loop-handles are decorated with carapace symbols. $^2/_5$

Figure *e.*—Vase in which the much reduced vertical handles are ornamented with carapace motives. $^2/_5$

Figure *f.*—Vase in which the vertical handles unite shoulder and rim and are entirely covered with carapace symbols. $^2/_5$



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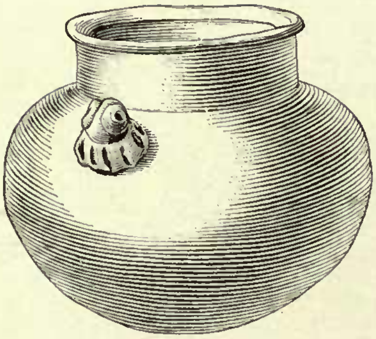

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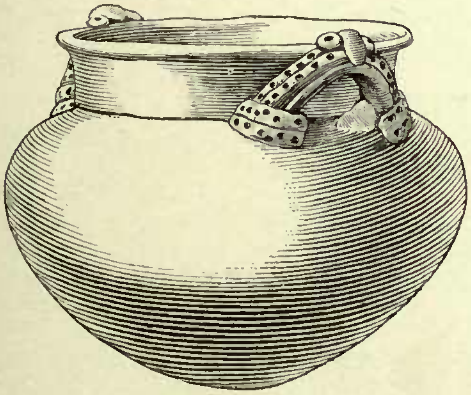

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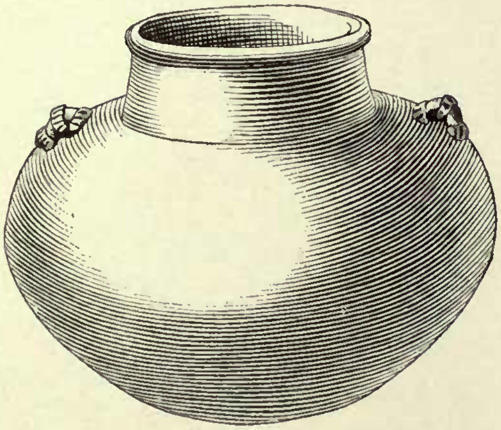

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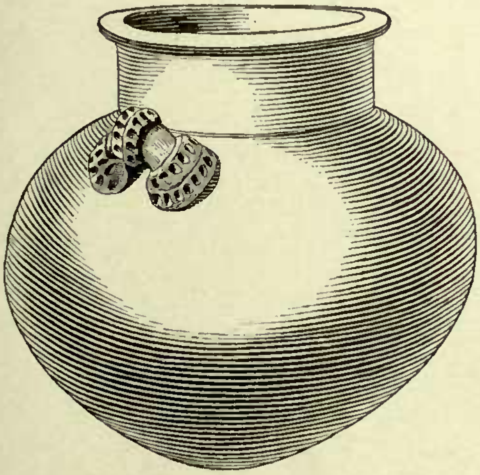

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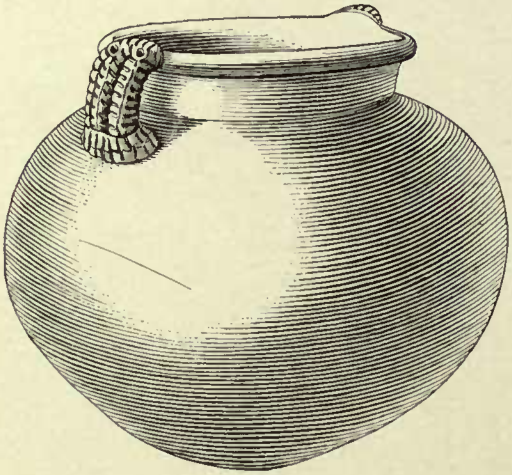

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Plate XIX

Vases belonging to the unpainted handled ware. Page 75.

Figure *a.*—Vase with horizontal loop-handles so treated as to indicate an animal form. $^2/_5$

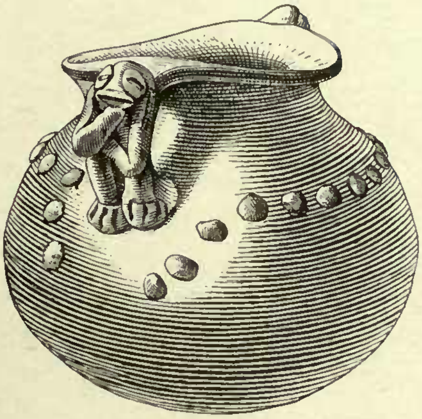
Figure *b.*—Vase with animal motives ornamenting handles and shoulder; from Divala. $^2/_5$

Figure *c.*—Vase decorated with plastic animal forms, connecting shoulder and rim and so arranged as to suggest double handles; from Gualaca. $^2/_5$

Figure *d.*—Vase with plastic human figure decorating the handles; the flattened nodes resembling rivet heads that encircle the body of the vessel probably represent the body-markings of the alligator. $^1/_2$

Figure *e.*—Flat-bottomed vase in which each horizontal handle is composed of two united figures of either man or monkey. $^1/_2$

Figure *f.*—Flat-bottomed vase in which both horizontal and vertical type of handle are combined in one. $^2/_5$



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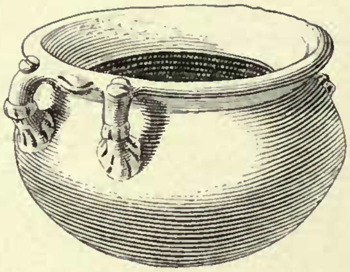

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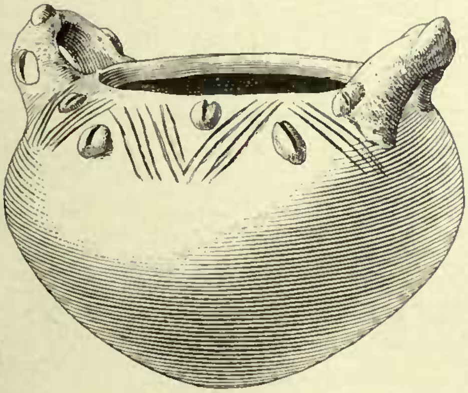

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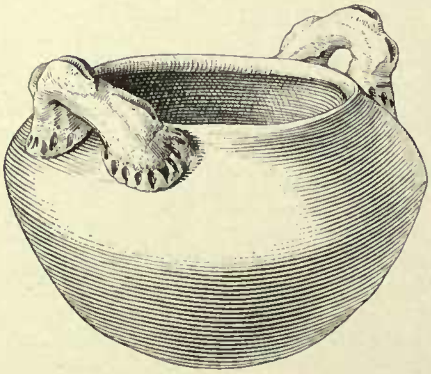

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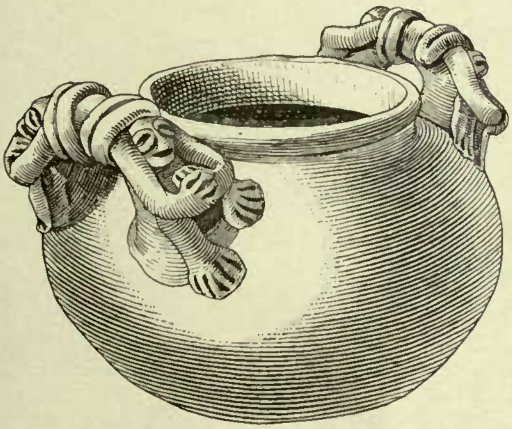

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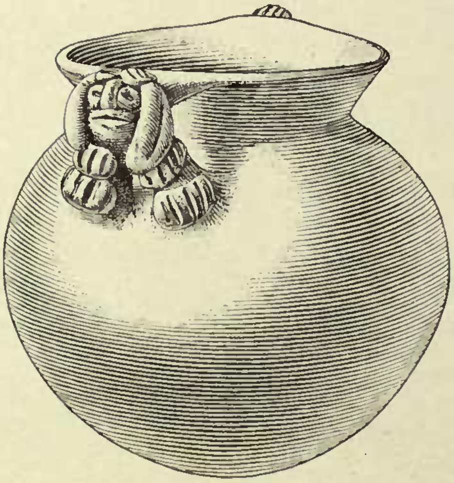

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Plate XX

Series of vases showing two prevailing types of rim and handles, the latter decorated with animal motives. Painted handled ware. Page 79.

Figure *a*.—Vase with vertical paired handles connecting shoulder and lip, the three nodes on each handle representing an animal form. $^2/_5$

Figure *b*.—Vase with graceful vertical handles, on each of which is a pair of nodes connected by a fillet. $^2/_5$

Figure *c*.—Vase with two nodes on each handle representing the ears or eyes of some animal form. $^2/_5$

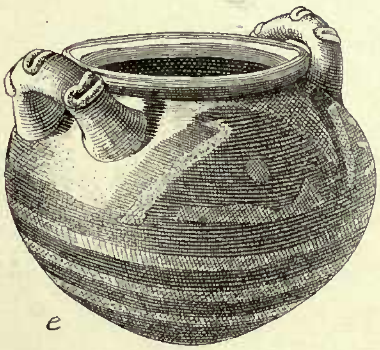
Figure *d*.—Vase with but a single node on each handle. $^2/_5$

Figure *e*.—Vase with horizontal handles that do not affect the shape of the rim; from Bugavita. $^2/_5$

Figure *f*.—Vase with horizontal handles, the neck being adorned with incised patterns. $^2/_5$

Figure *g*.—Vase with incised shoulder, and handles that represent animal forms; from El Banco. $^2/_5$

Figure *h*.—Vase in which the two plain nodes on each handle represent the ears or eyes of some life form. $^2/_5$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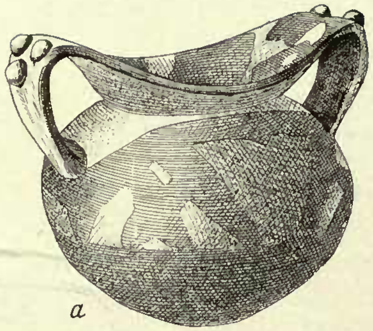
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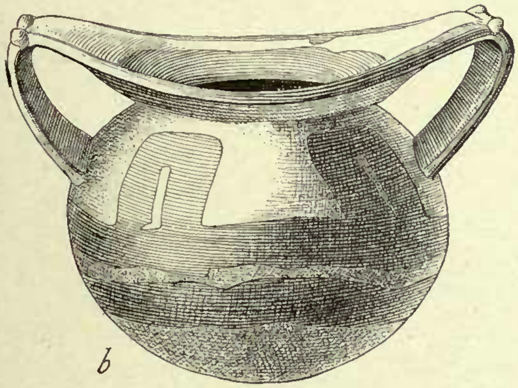
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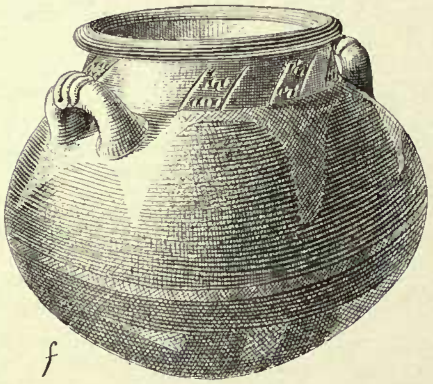
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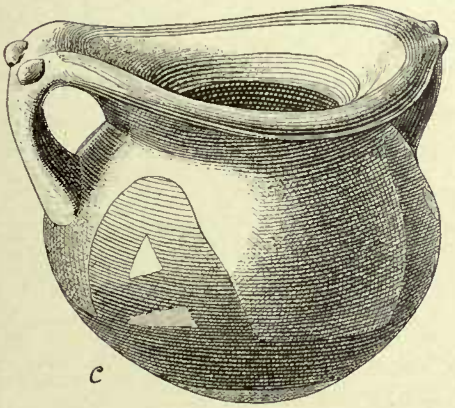
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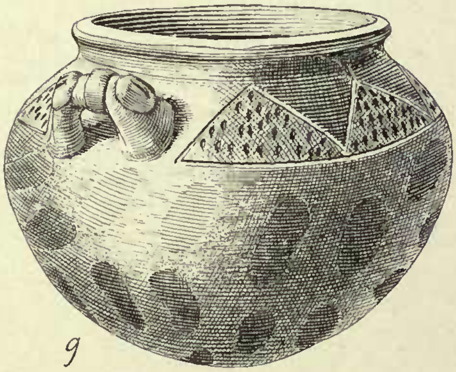
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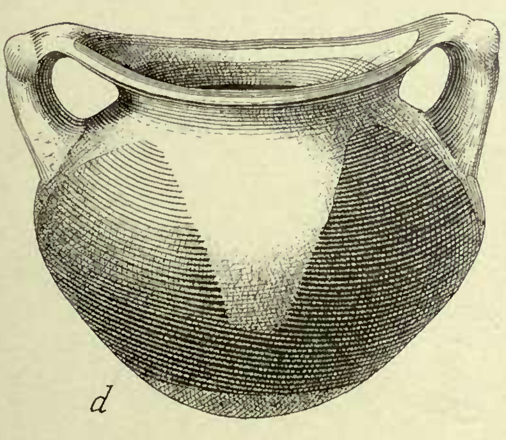
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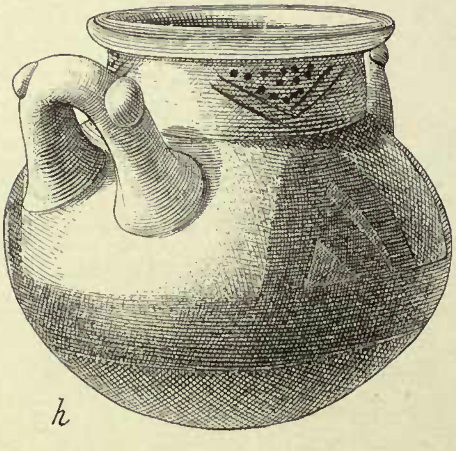
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Plate XXI

Series of vases in which the vertical handles are converted into human or apelike forms by the addition of plastic features. Painted handled ware. Page 79.

Figure *a.*—Small vase in which the handles resemble the human figure with proboscis. $^1/_2$

Figure *b.*—Vase in which each handle is a twin figure; from Bugavita. $^1/_2$

Figure *c.*—Vase in which each handle is represented by two figures; from Divala. $^1/_2$

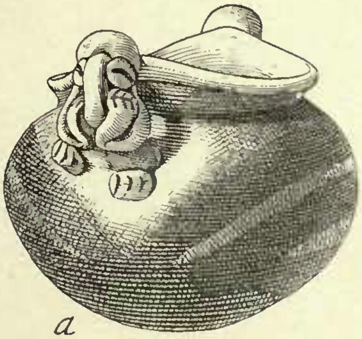
Figure *d.*—Vase in which each handle represents a grotesque human figure. $^1/_2$

Figure *e.*—Small low vase with flaring rim with handles representing the human form. $^1/_2$

Figure *f.*—Small vase with sloping rim and grotesque figures serving as handles. $^1/_2$

Figure *g.*—Vase with incised shoulder ornamentation, two grotesque figures taking the place of handles. $^1/_2$

Figure *h.*—Vase in which the human figures serving as handles are deftly modeled (see text-fig. 126); from Bugavita. $^1/_2$



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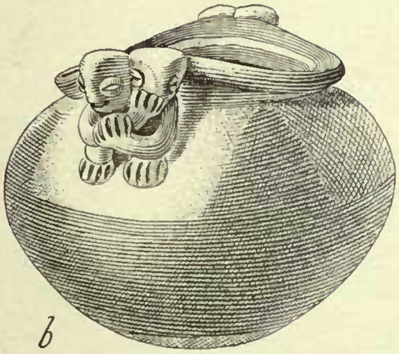

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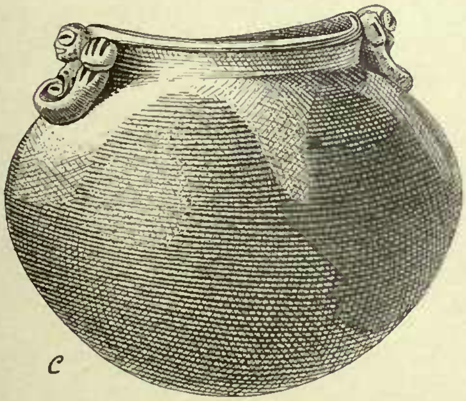

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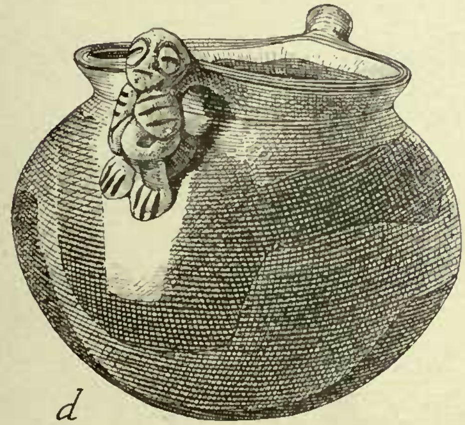

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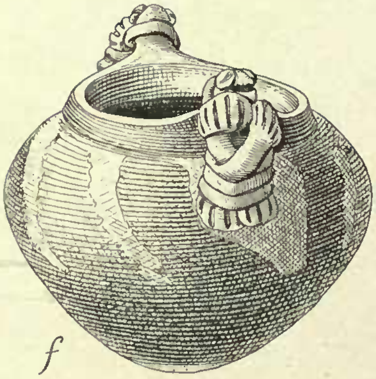

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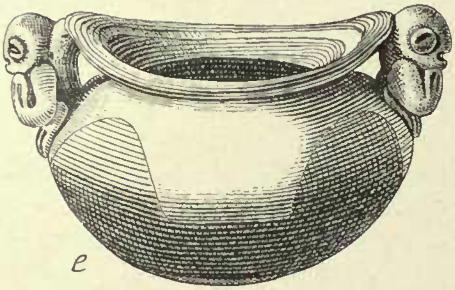

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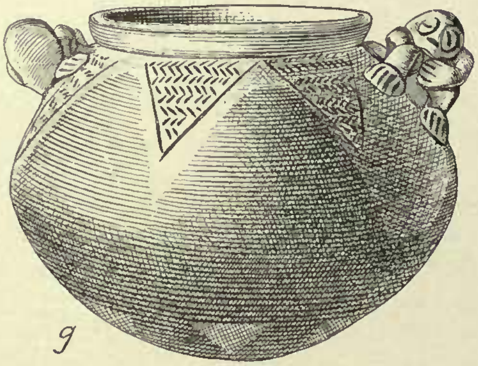

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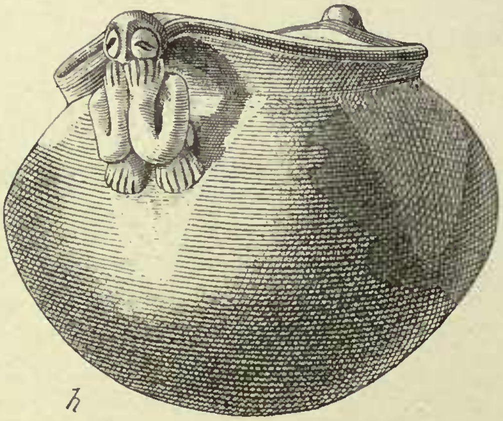

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Plate XXII

Series of tripod vases in which the red paint is smeared by being rubbed before it was dry. Fish ware. Page 85.

Figure *a*.—Vase in which the supports are ornamented with the eyes, mouth and tail fin of the fish; from Bugavita. 1/2

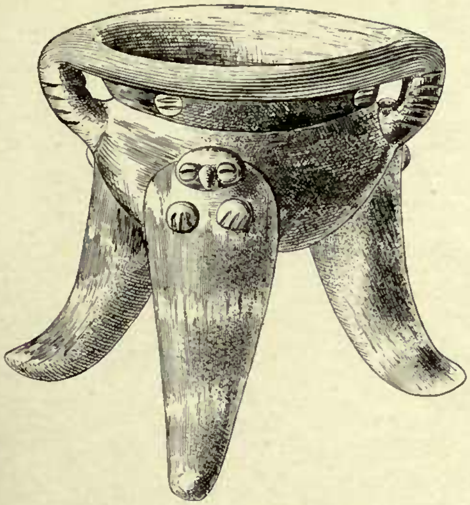
Figure *b*.—Vase with spreading supports bearing pectoral fins only. 1/2

Figure *c*.—Vase in which the supports are made to resemble a bird, probably the hawk or parrot. 1/2

Figure *d*.—Vase with plain supports except for the projection at the hip to suggest the nose of the fish. 1/2

Figure *e*.—Large vase with plain legs except for a flattening at the foot to indicate the caudal fin. 1/2

Figure *f*.—Vase with diagonally incised handles and plain supports. 1/2



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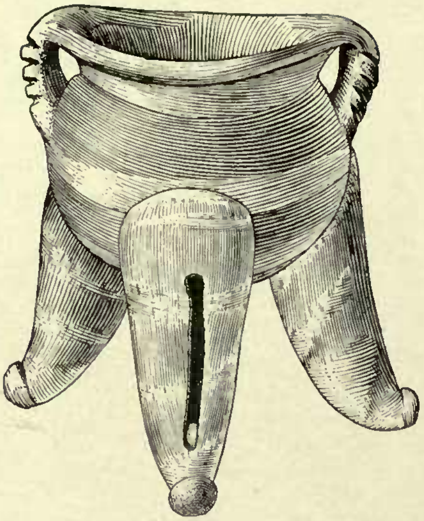

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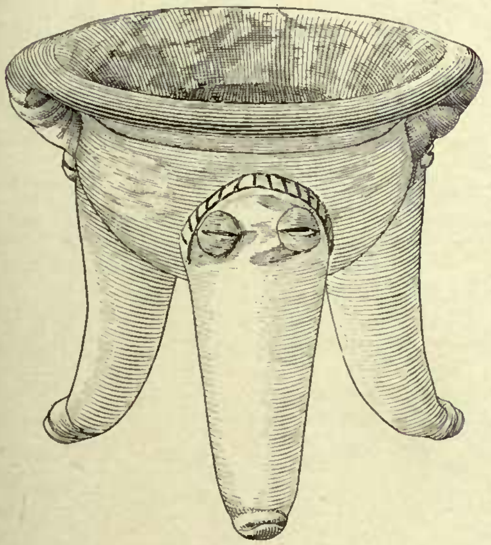

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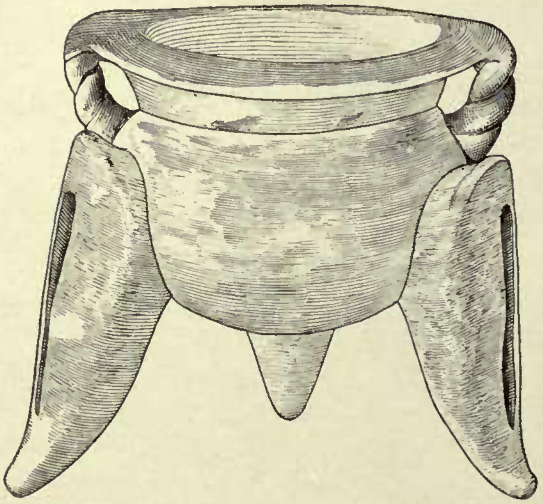

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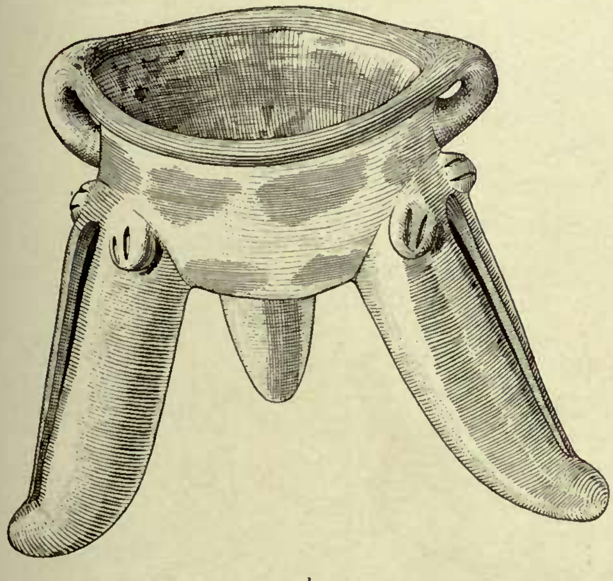

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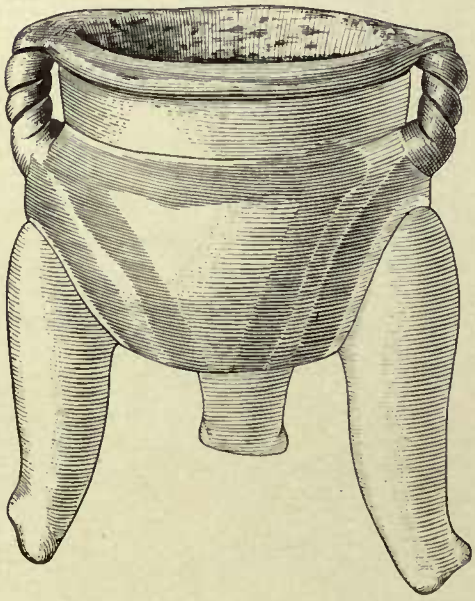

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Plate XXIII

Series of large tripod vases. Fish ware. Pages 85, 86.

Figure *a.*—Graceful urn-shaped vase, the neck being adorned with a series of scrolls and an incised fillet, and the tripod supports showing realistic representations of the fish, with all except the anal fins present. $^1/_3$

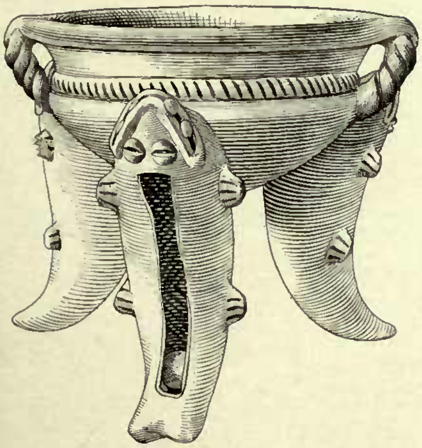
Figure *b.*—Large vase, the dorsal fins on the supports being placed forward on the tip of the nose and between the eyes. $^1/_3$

Figure *c.*—Vase with highly curved fishlike supports on which only pectoral, ventral and caudal fins are present. $^1/_3$

Figure *d.*—Unique vase with long cone-shaped neck and plain angular handles, only the pectoral and caudal fins remaining on the fish-shaped supports. $^1/_3$

Figure *e.*—Vase, the supports of which are plain except for a hip decoration representing the mouth, eyes and dorsal fin of the fish. $^1/_3$

Figure *f.*—Large vase, one of whose supports represents the fish, while the other two are highly realistic alligator forms. $^1/_3$



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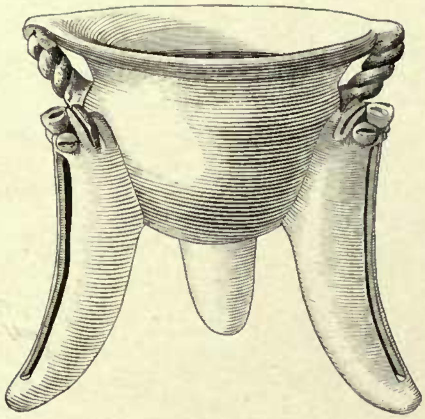

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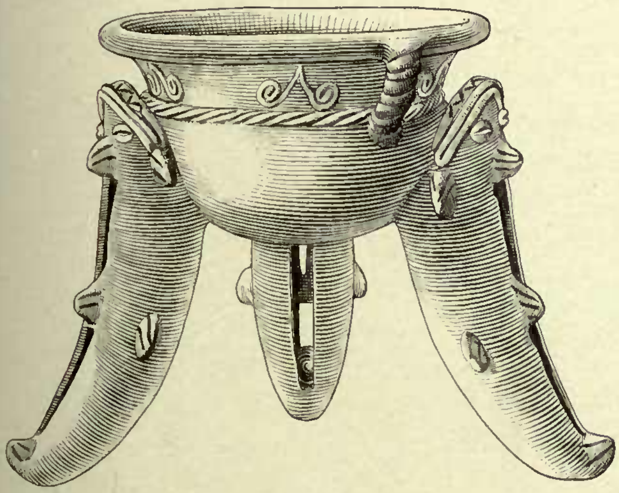

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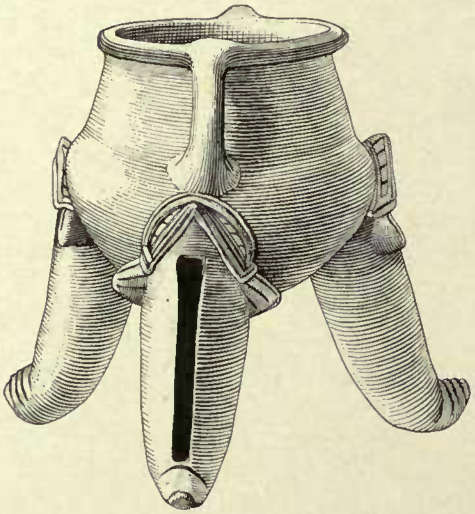

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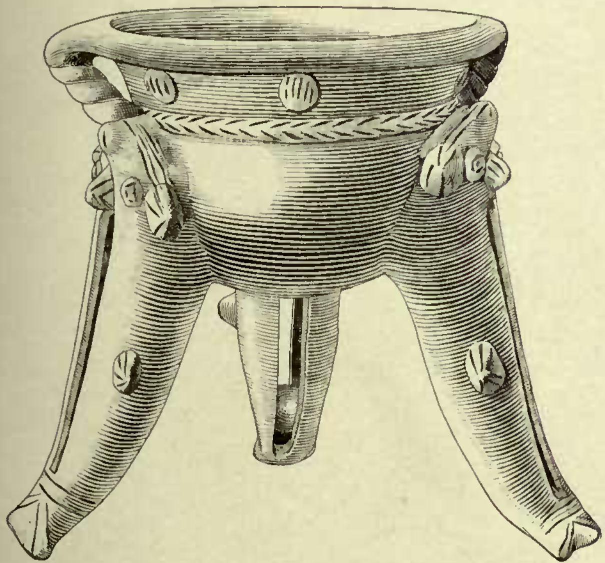

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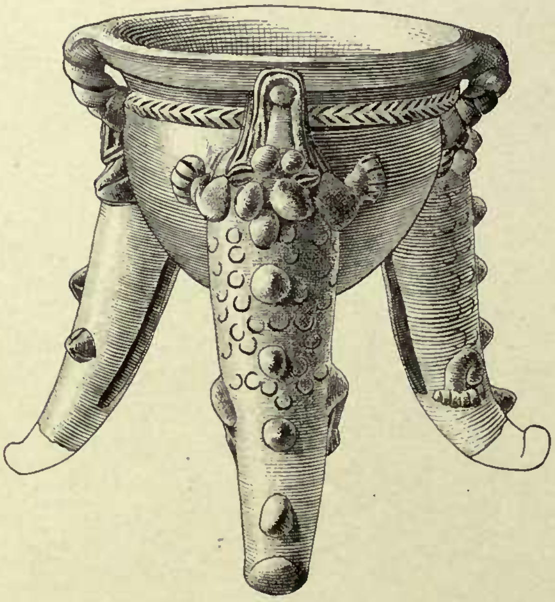

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Plate XXIV

Series of tripod vases in which the fish attributes are overshadowed by the addition of other animal forms. Fish ware. Pages 88, 89.

Figure *a.*—Large vase without handles, the fishlike supports showing grotesque apelike figures on the nose of each fish; from El Banco. $^1/_4$

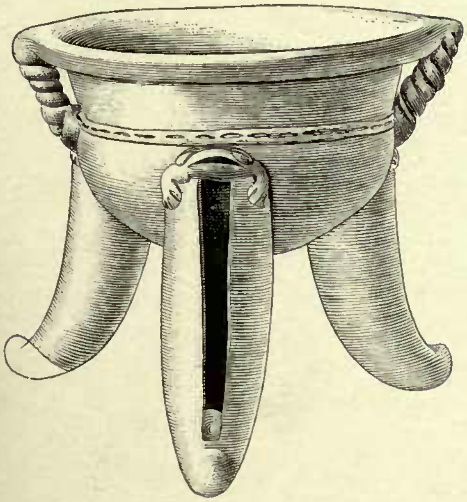
Figure *b.*—Large vase with twisted handles, the hip ornaments on the legs being different in each case: from El Banco. $^1/_3$

Figure *c.*—Vase with a long-tailed animal reposing on the hip of each support. $^1/_3$

Figure *d.*—Vase in which the hip ornament resembles the owl. $^1/_3$

Figure *e.*—Vase, the supports of which bear a realistic representation of the owl as hip ornaments; from Divala. $^1/_3$

Figure *f.*—Vase in which the frog appears as hip ornament on the supports. $^1/_3$



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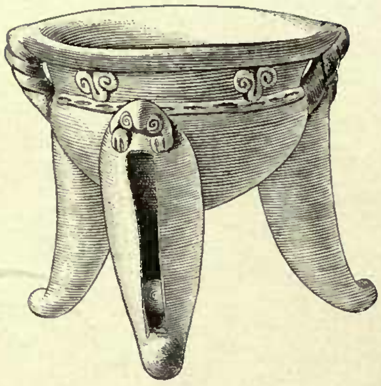

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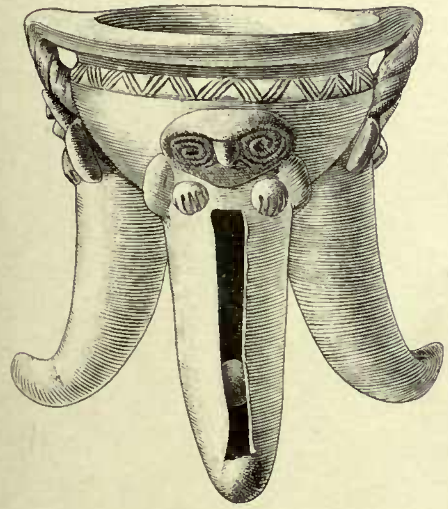

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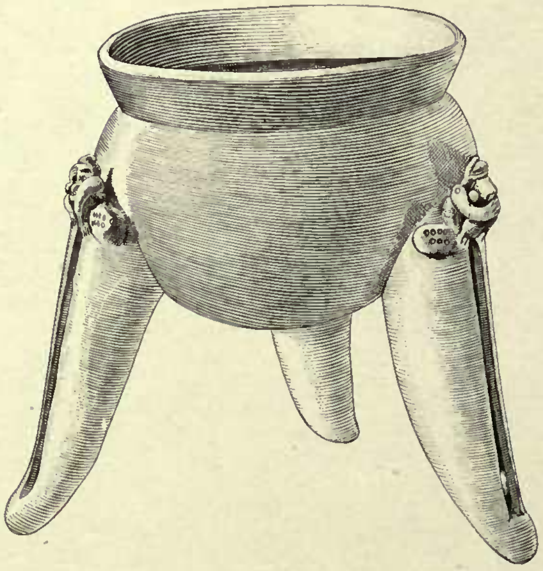

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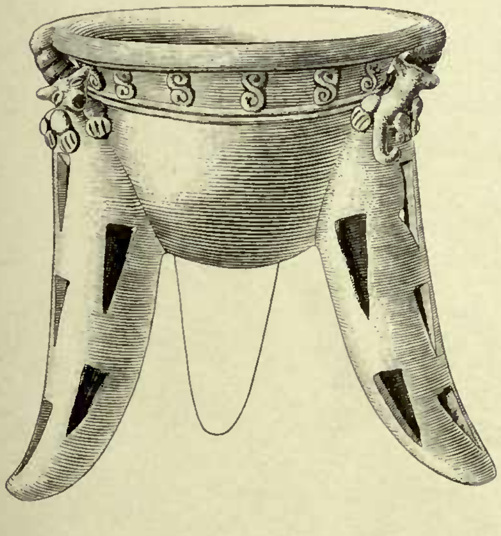

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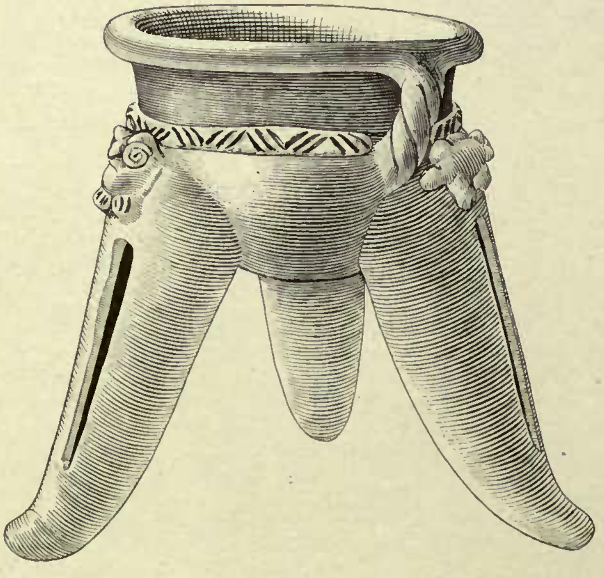

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Plate XXV

Series of vases exhibiting a variety of forms. Red line ware. Pages 92, 93.

Figure *a.*—Large globular vase with gently curving paired handles. $^1/_3$

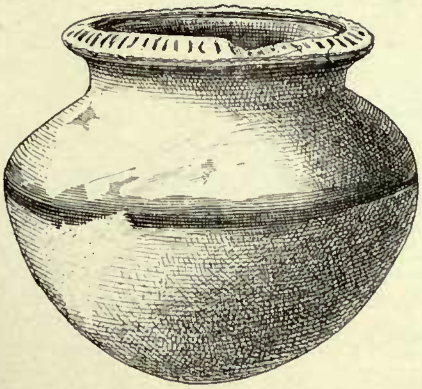
Figure *b.*—Small vase with single handle, opposite which are two plain nodes of clay. $^1/_2$

Figure *c.*—Vase with single handle, the relief ornaments on the neck representing the human features. $^2/_5$

Figure *d.*—Vase without handles, the margin of the rim being marked by radiating incisions; from Divala. $^1/_2$

Figure *e.*—Tripod with characteristic loop foot, paired indeterminate life forms decorating the body of the vase; from Caldera. $^2/_5$

Figure *f.*—Unique vase with projecting collar and annular foot; may have served as a drum. $^1/_3$



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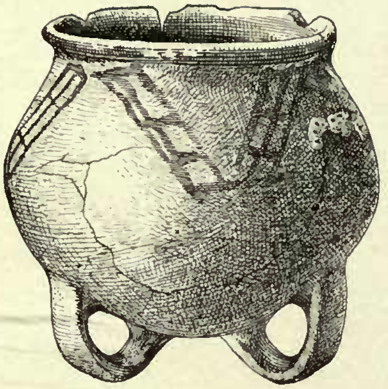

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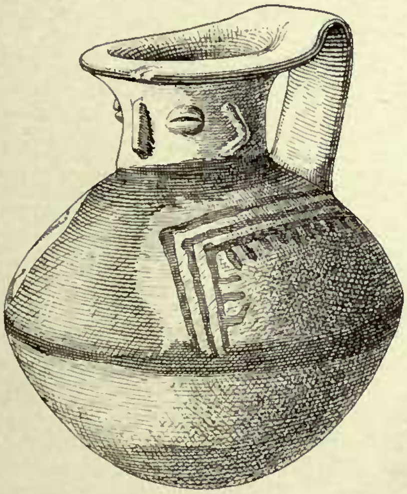

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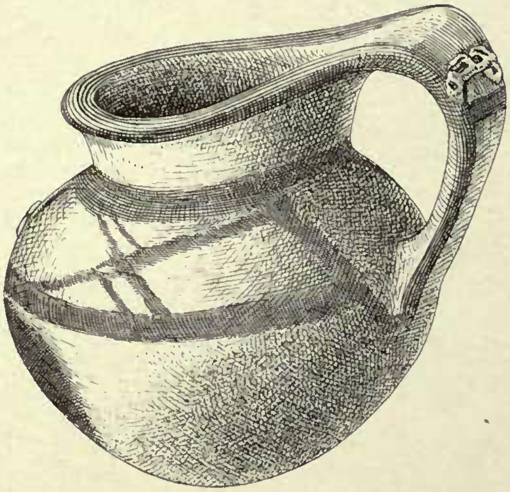

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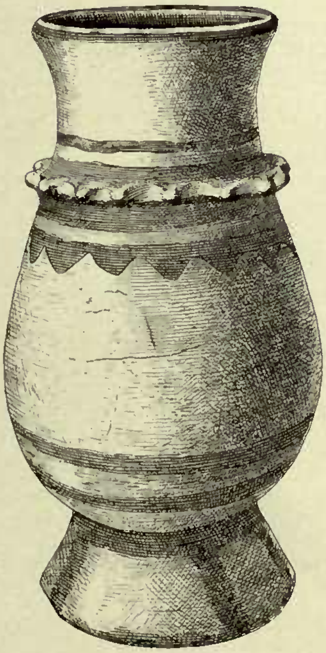

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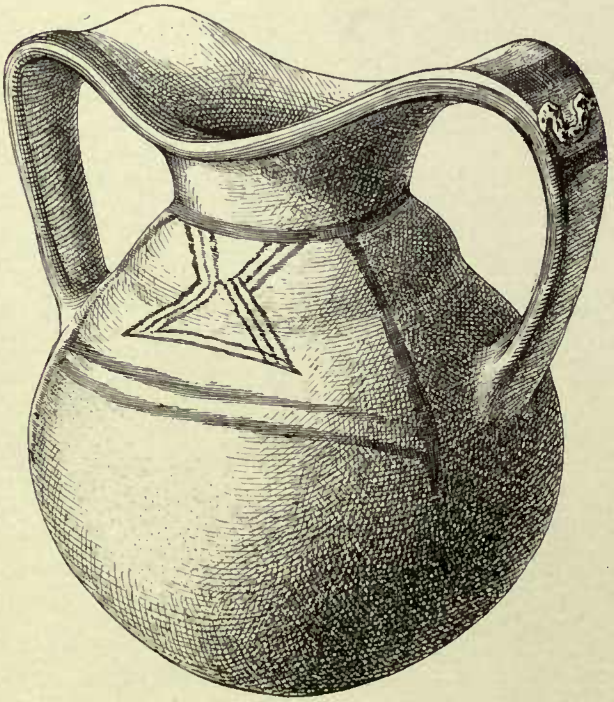

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Plate XXVI

Series of vessels of varied form and decoration. Scarified ware. Pages 99, 100.

Figure *a.*—Fine large jar with flat bottom and flaring rim, the scarified zone reaching from near the base to the neck. $^1/_3$

Figure *b.*—Two-storied vase; the upper story plain, the lower story entirely covered with scarifications. $^1/_3$

Figure *c.*—Vase with four legs, the applied head and tail completing the zoömorphic unit. The scarifications represent the armadillo carapace. $^1/_3$

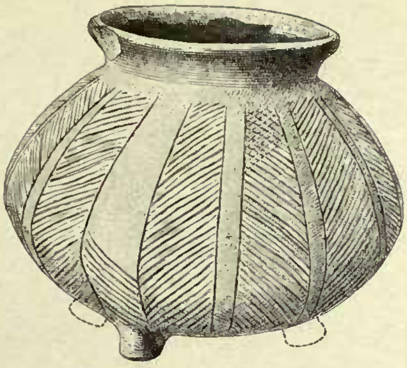
Figure *d.*—Graceful tripod with long solid legs probably representing the armadillo, as indicated by the prominence at the hip. $^2/_5$

Figure *e.*—Bell-shaped, flat-bottomed tripod, the legs of which are missing. The scarified surfaces give the effect of having been produced by some textile fabric; from Caldera. $^2/_5$

Figure *f.*—Tripod bowl with scarifications suggesting the warp and weft of basketry. $^2/_3$

Figure *g.*—Tripod scarified in vertical bands, one being left unfinished. $^1/_3$

Figure *h.*—Vase with flaring rim, the bowl being practically covered with scarifications. $^1/_3$



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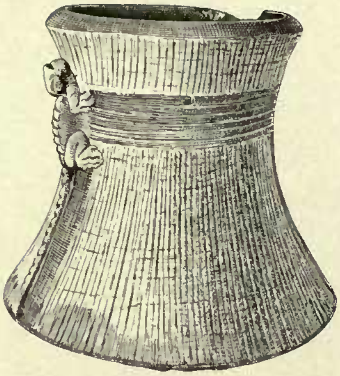

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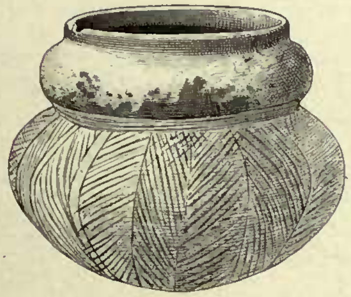

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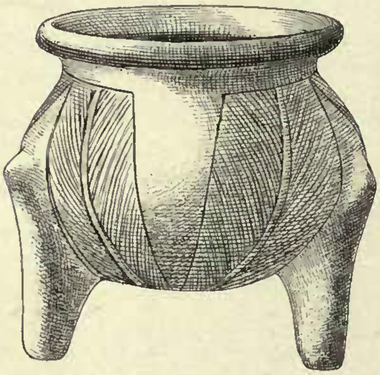

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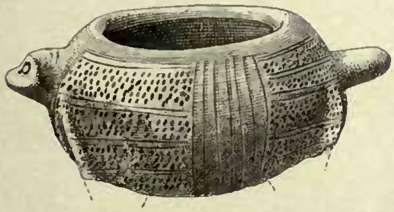

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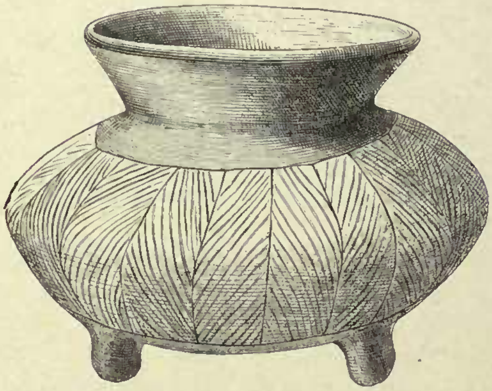

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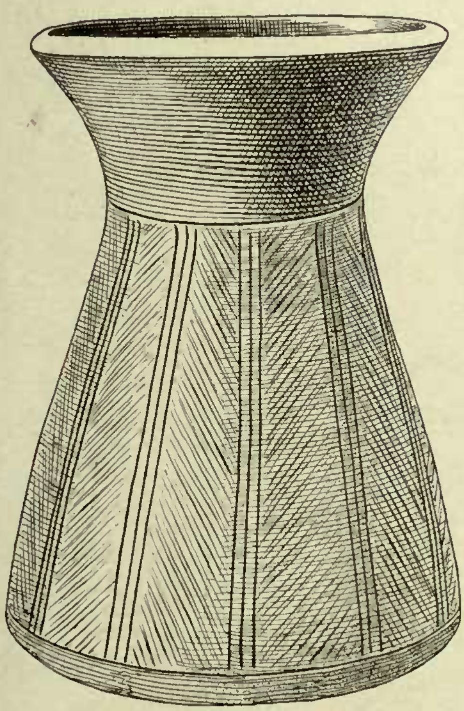

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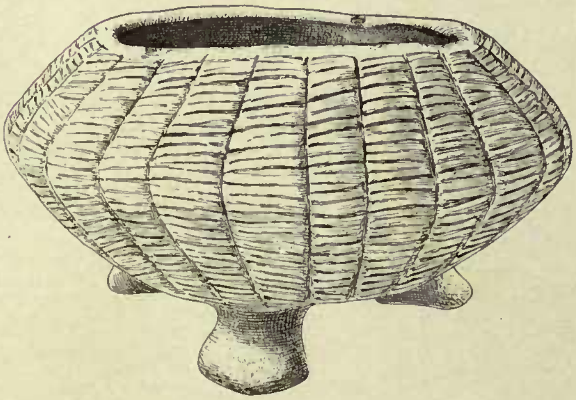

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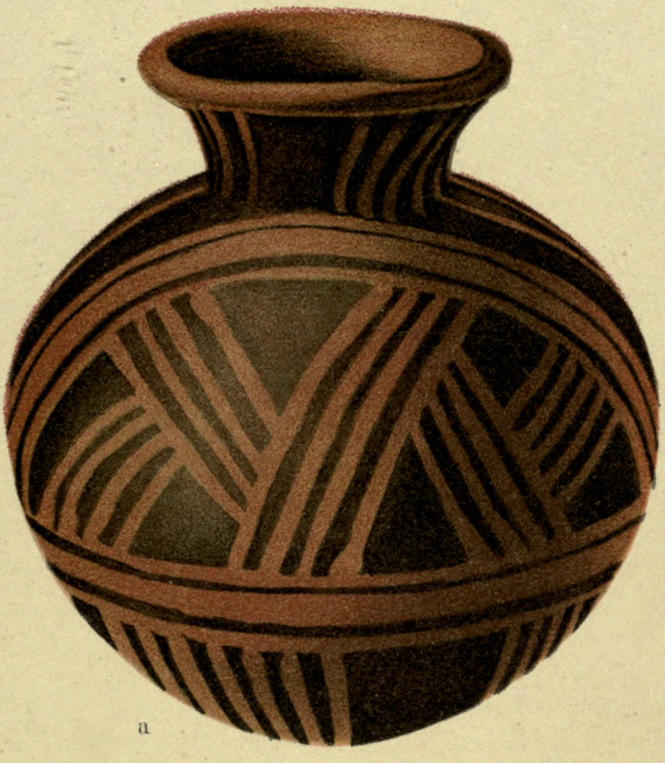
Plate XXVII

Vases representing two distinct types of lost color ware. Pages 106, 110.

Figure *a*.—Globular vase with linear decorations covering body and neck, the entire original ground being red in color. $^3/_5$

Figure *b*.—Vase, the original ground of which consists of red and cream zones, the latter being decorated with a series of monkey forms; from Bugavita. $^3/_5$

PLATE XXVII



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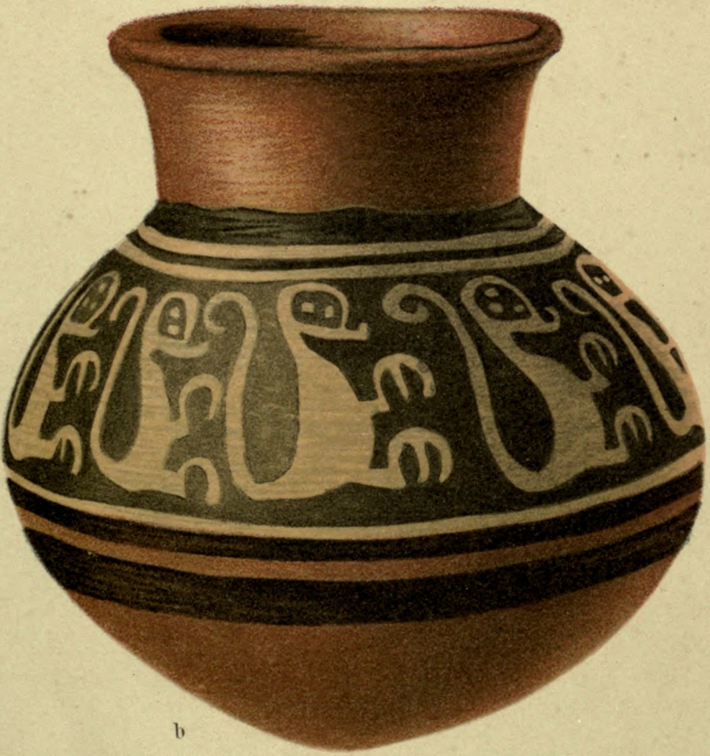

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Plate XXVIII

Series of vases with original ground of red and with linear decorations. Lost color ware. Pages 107, 108.

Figure *a.*—Vase with quadrangular panels in upper zone. $^1/_2$

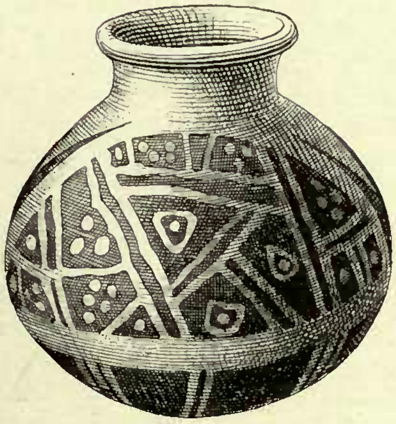
Figure *b.*—Vase with ornamented arched panels in upper zone. $^1/_2$

Figure *c.*—Vase in which the upper zonal decorations, consist of groups of lines radiating from the neck, the lower zone being banded horizontally. $^1/_2$

Figure *d.*—Vase in which the upper zone is decorated longitudinally and the lower zone latitudinally; from El Banco. $^1/_2$

Figure *e.*—Vase, the upper zone of which is decorated with groups of parallel bands that meet and disappear; from Vivala (not Divala). $^1/_2$

Figure *f.*—Vase with flaring rectangular lip, the upper zone being traversed by a meandering group of parallel lines; from Vivala. $^1/_2$



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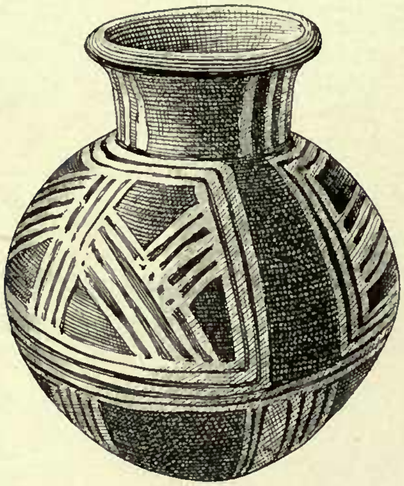

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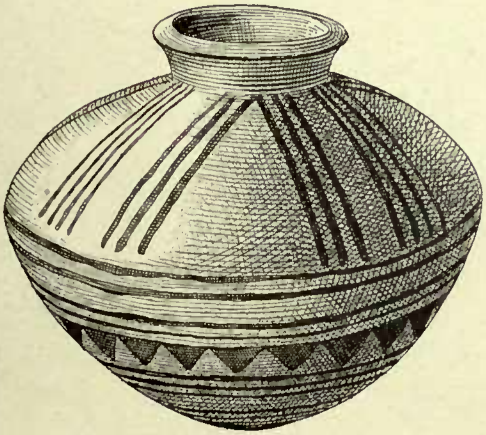

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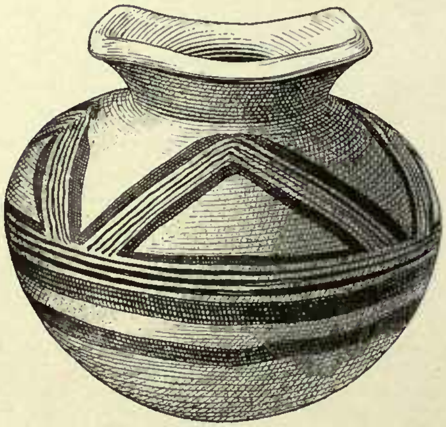

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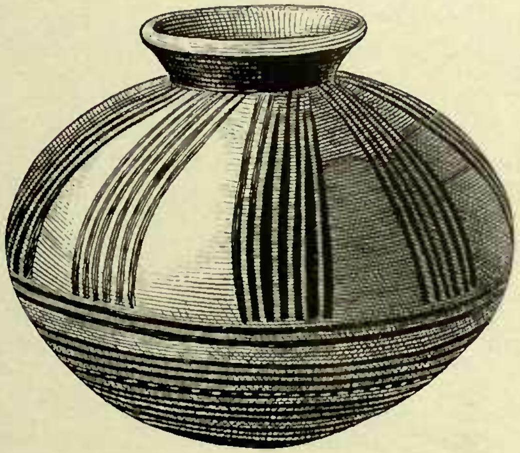

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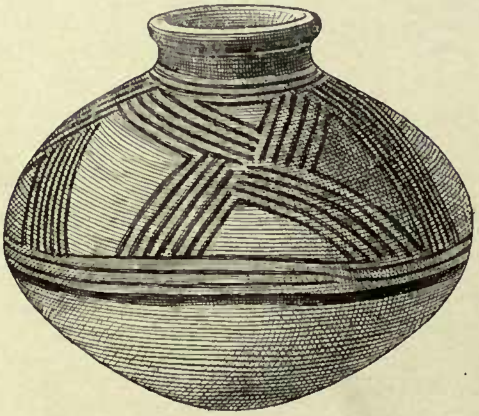

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Plate XXIX

Series of vases, some with handles or ornaments in relief, the original ground color being red. Lost color ware. Pages 108, 109.

Figure *a.*—Vase with cross-banded handles and with linear and panel decorations. $^2/_5$

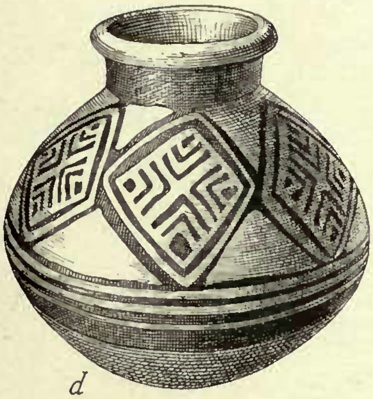
Figure *b.*—Vase with cross-banded handles, the decorations near the base of each handle consisting of alligator motives. $^2/_5$

Figure *c.*—Vase, the unpolished neck of which is ornamented with eye symbols in relief, the painted decoration of the body being longitudinal in the upper zone and latitudinal in the lower zone; from Vivala (not Divala). $^2/_5$

Figure *d.*—Vase, the shoulder of which is decorated with six diamond-shaped panels; from Divala. $^2/_5$

Figure *e.*—Wide-mouthed vase with recurved lip, the shoulder being decorated with dorsal-view motives derived from the alligator; from Divala. $^2/_5$

Figure *f.*—Vase, the collar of which is modified to represent an animal form. $^2/_5$



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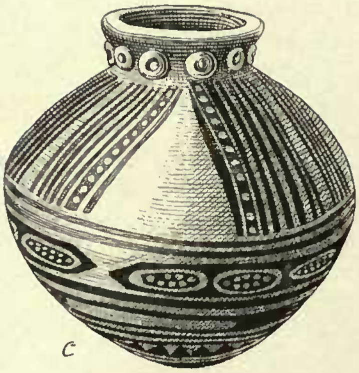

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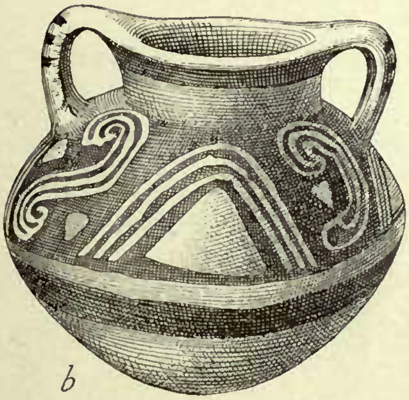

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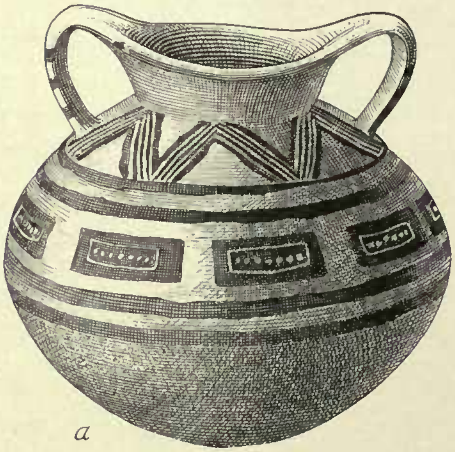

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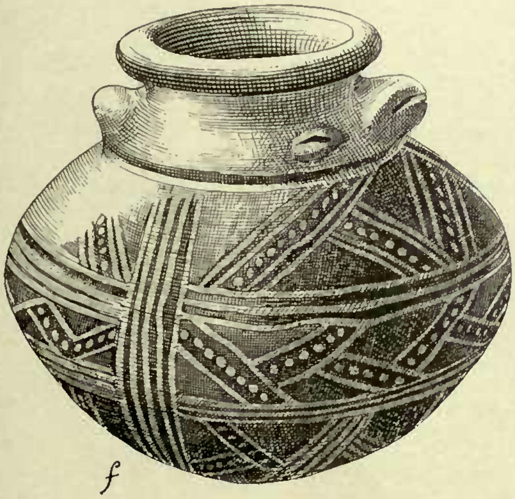

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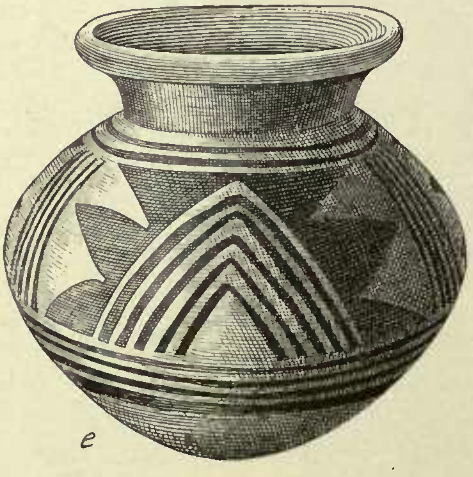

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Plate XXX

Series of vases in which the ground colors are light above and red below, either alligator motives or serpent motives appearing in the designs.
Lost color ware. Pages 111, 112.

Figure *a.*—Vase whose circular rim bears vestiges of a square lip; the neck is ornamented with painted eye ornaments. $^1/_2$

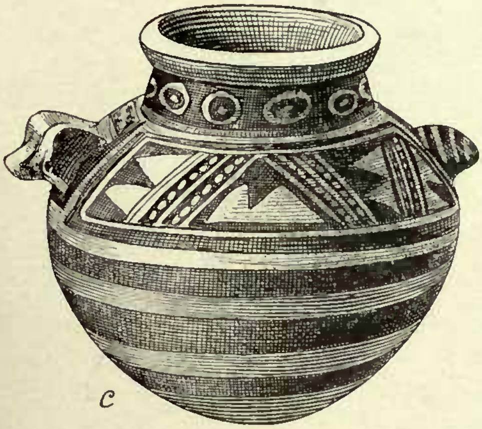
Figure *b.*—Vase with two animal heads in relief on the equatorial zone, a single tail appearing on the opposite side. $^1/_2$

Figure *c.*—Vase whose shoulder is decorated with the head and tail of the racoon, the panel patterns of the intervening spaces being alligator motives. $^1/_2$

Figure *d.*—Vase decorated with design resembling serpent motives. $^1/_2$

Figure *e.*—Vase in which the panel designs resemble the serpent motive. $^1/_2$

Figure *f.*—Vase with single vertical handle, the shoulder decoration being a spool shaped motive. $^1/_2$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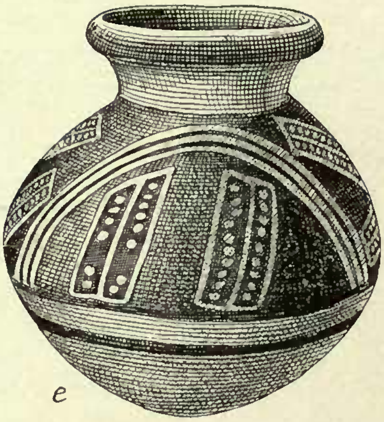
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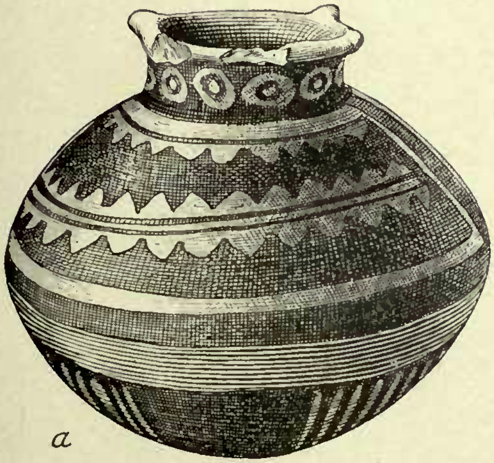
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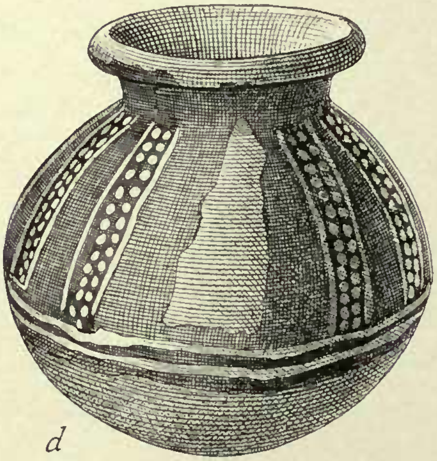
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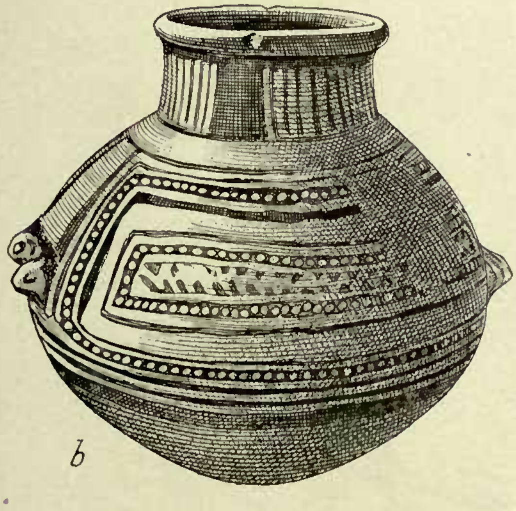
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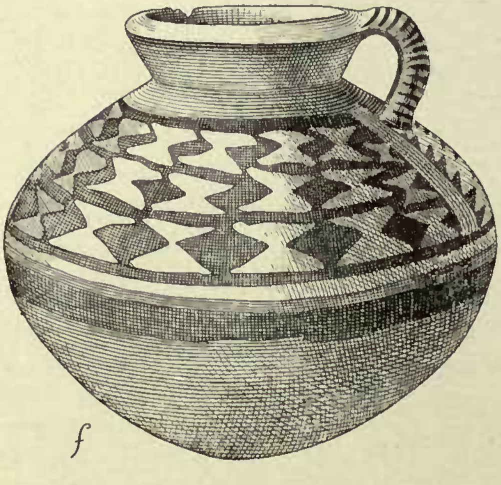
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Plate XXXI

Series of vases, the decorations on which are derived from the dorsal view of the alligator. Lost color ware. Pages 117, 118.

Figure *a.*—Vase with two types of dorsal-view motive derived from the alligator, one on the neck and one on the shoulder; from Bugavita. $^2/_5$

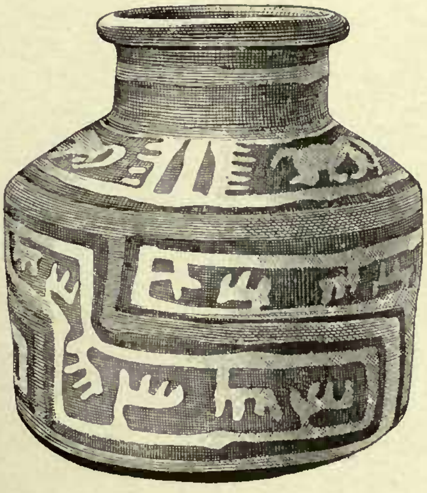
Figure *b.*—Vase in which the arched panels and the field surrounding the neck are covered by series of dorsal-view motives, the lateral serrations being plain spines. $^2/_5$

Figure *c.*—Flat-bottomed vase like a tea-caddy in shape; the body is decorated with three overlapping panels; the three panels on the shoulder are separated by dorsal-view motives. $^1/_2$

Figure *d.*—Vase in which the shoulder zone is decorated with the dorsal-view motive repeated seven times; from Bugavita. $^2/_5$

Figure *e.*—Vase in which the two small arched panels each contain two dorsal-view motives placed obliquely. $^1/_2$

Figure *f.*—Vase with rectangular lip, the panel decorations on the shoulder resembling the dorsal-view motive placed horizontally. $^1/_3$



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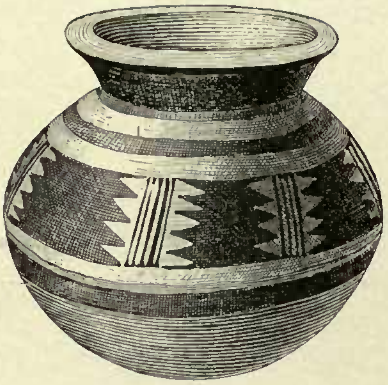

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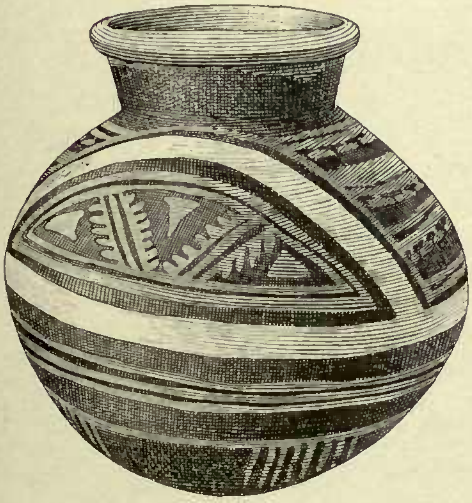

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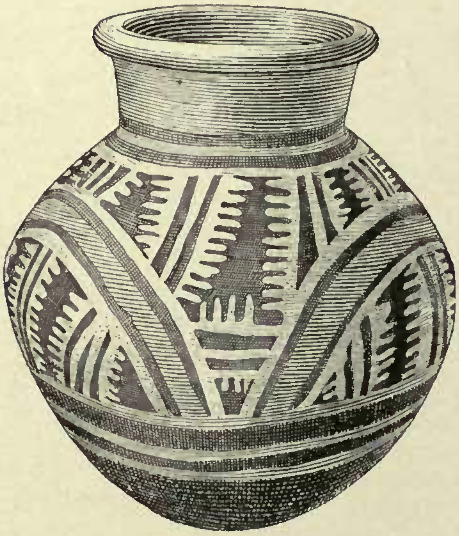

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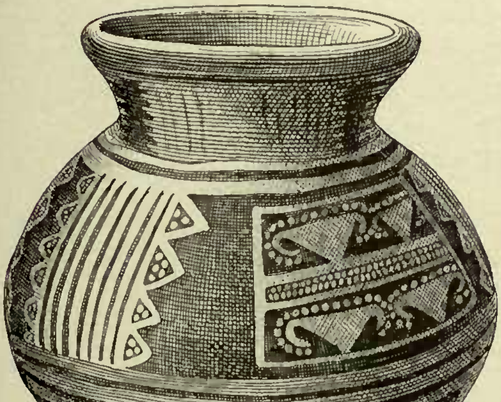

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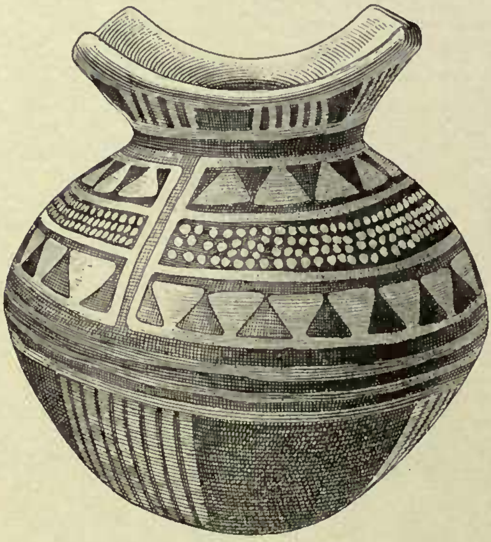

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Plate XXXII

Series of tripods showing variations in form and ornamentation.
Lost color ware. Pages 122—124.

Figure *a.*—Tripod vase with the body altered in the equatorial region to resemble the crab; the shoulder is divided into four panels by spool-shaped ornaments, each panel showing a series of monkeys; from Vivala (not Divala). $^2/_5$

Figure *b.*—Shallow tripod bowl representing the turkey-buzzard, the painted decorations consisting of groups of parallel lines meeting at various angles; from Divala. $^2/_5$

Figure *c.*—Open shallow tripod bowl the outer surface of which, except the legs, is elaborately decorated; from Divala. $^2/_5$

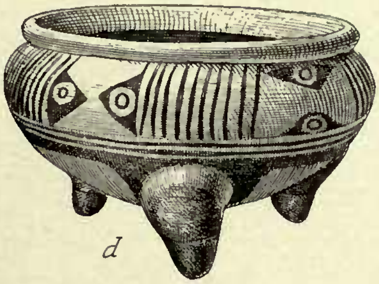
Figure *d.*—Tripod vase showing a design of six groups of vertical bands alternating with spool-shaped ornaments, accompanied by eyes. $^1/_2$

Figure *e.*—Tripod bowl showing painted interior decorations; from Divala. $^1/_2$

Figure *f.*—Tripod vase whose entire outer surface is completely covered with decorations, the sides being divided into panels by groups of vertical bands; from Divala. $^2/_3$

Figure *g.*—Rare type of tripod vase with sloping flattened upper zone and steeply sloping collar. $^2/_5$

Figure *h.*—Calabash type of tripod bowl; spool-shaped ornaments accompanied by eyes convert the supports into an animal form, the cross-banding suggesting the armadillo carapace; from Divala. $^1/_2$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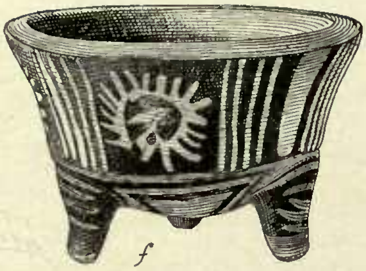
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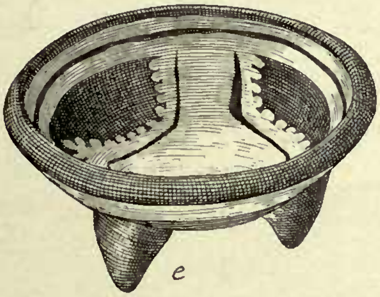
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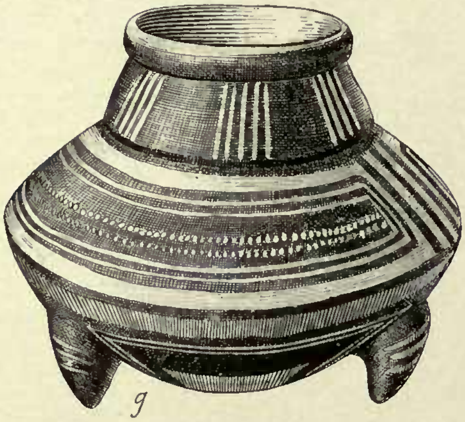
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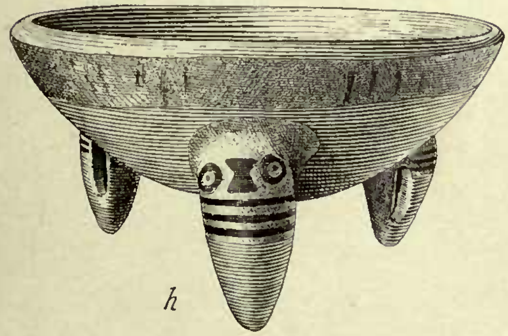
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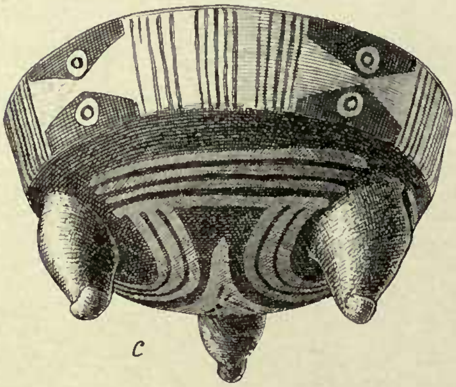
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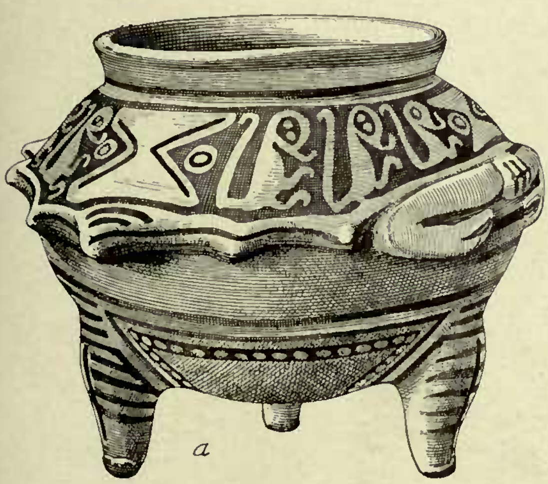
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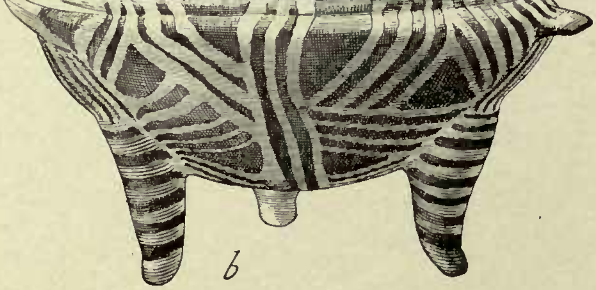
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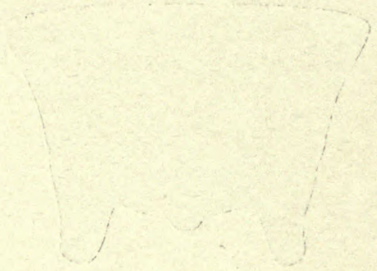


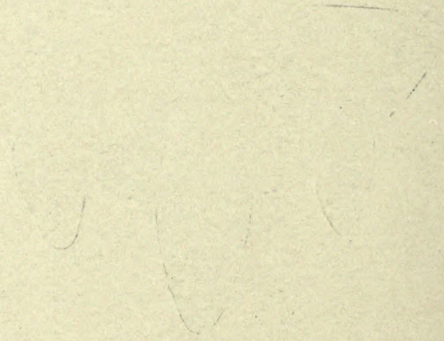


Plate XXXIII

A typical series of vases. Alligator ware. Pages 128—130.

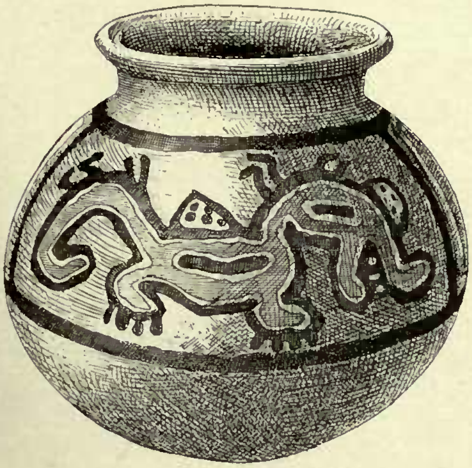
Figure *a*.—Vase in which the two large panels are each decorated with a realistic representation of the alligator, combining all its characteristic features. $^3/_5$

Figures *b* and *c*.—Characteristic vases, the shoulder of each being ornamented with two alligators; *c* is from Vivala. $^2/_5$

Figure *d*.—Double-necked vase with representation of the alligator in which the head is turned, the long jaws extending over the back and tail; from Bugavita. $^1/_2$

Figure *e*.—Vase illustrating conventional treatment of the alligator; from Bugavita. $^1/_2$

Figure *f*.—Vase whose shoulder decorations represent the alligator with much reduced body and extremities. $^3/_5$



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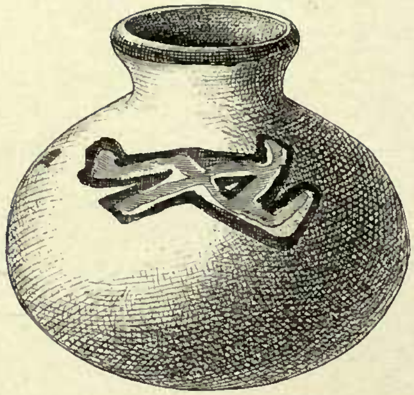

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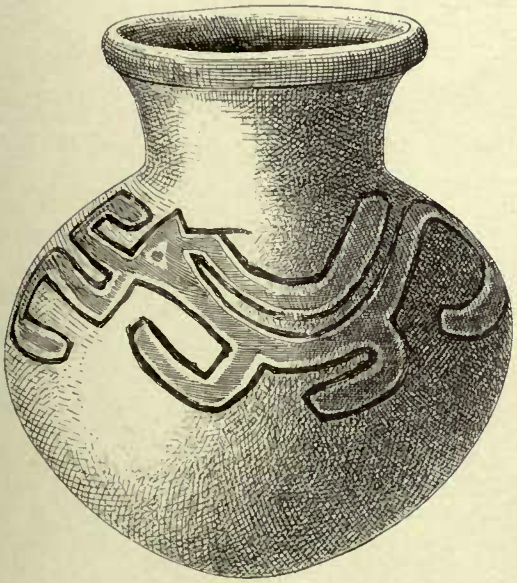

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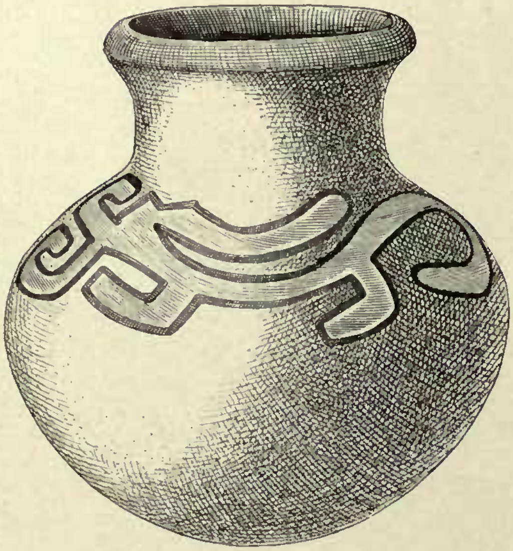

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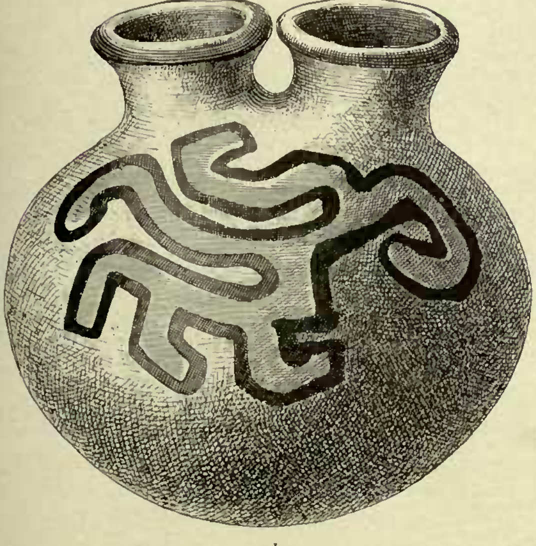

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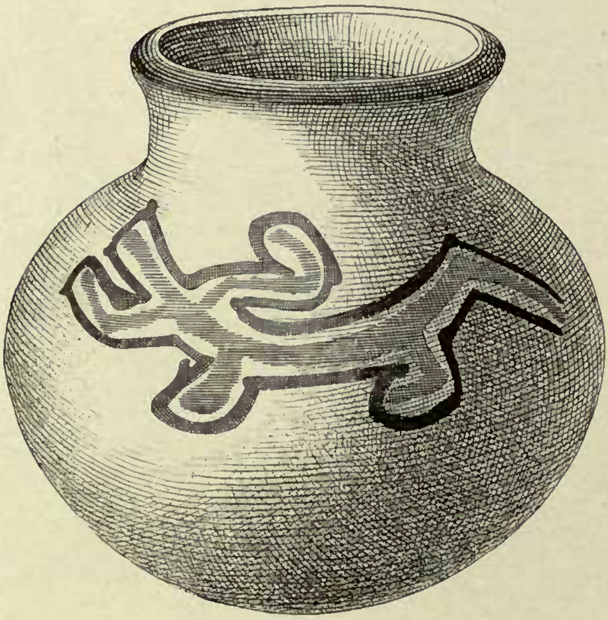


Plate XXXIV

Series of vases showing progressive steps in the process of conventionalizing the alligator form. Alligator ware. Page 132.

Figure *a.*—Vase in which the decoration represents the alligator with two heads but only one nuchal appendage — an example of both reduplication and elimination. $^3/_5$

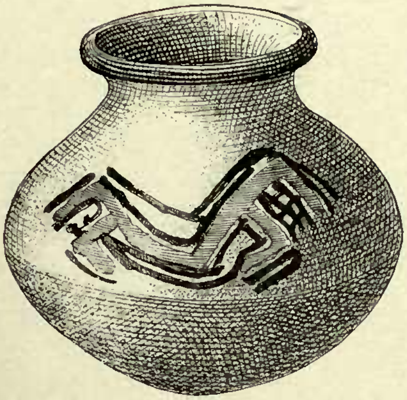
Figure *b.*—Vase ornamented with the double-headed type of alligator motive. $^3/_5$

Figure *c.*—Vase, the shoulder zone of which is adorned with alligator motives. $^3/_5$

Figure *d.*—Vase in which the lower zone is red and the upper zone shows a series of alligator motives; from Vivala (not Divala). $^1/_2$

Figure *e.*—Vase in which the panel decoration on the shoulder consists of alligator motives. $^1/_2$

Figure *f.*—Vase in which simplification and general reduction of the alligator form reach their limit. $^1/_2$



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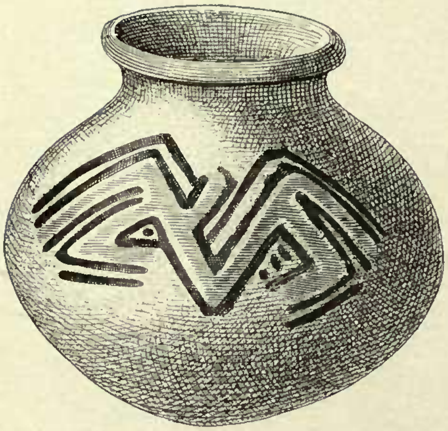

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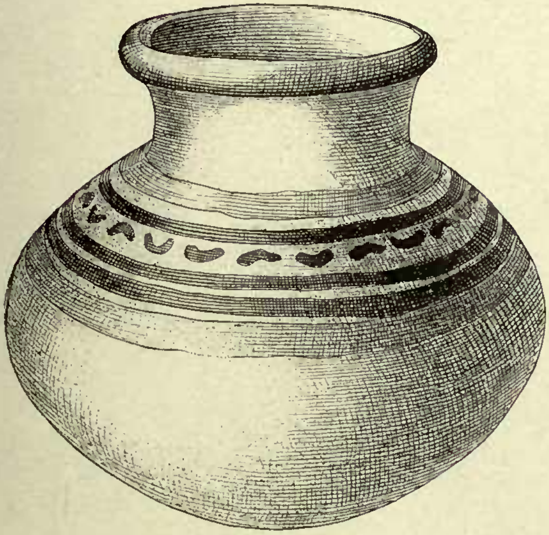

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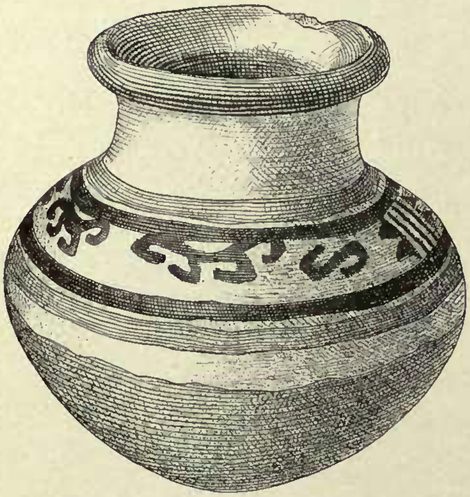

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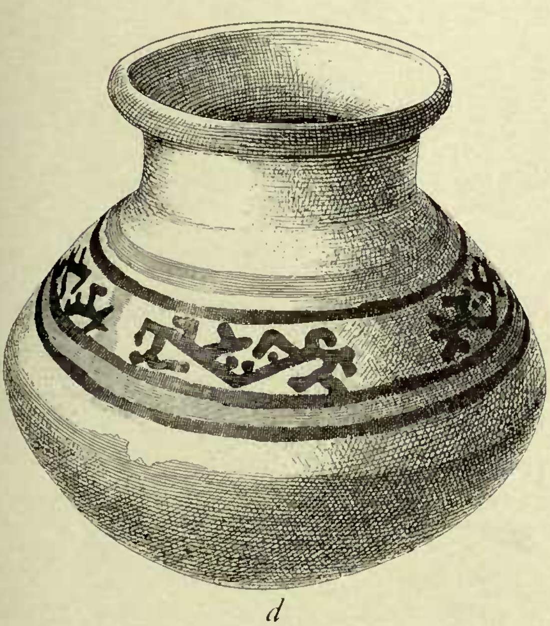

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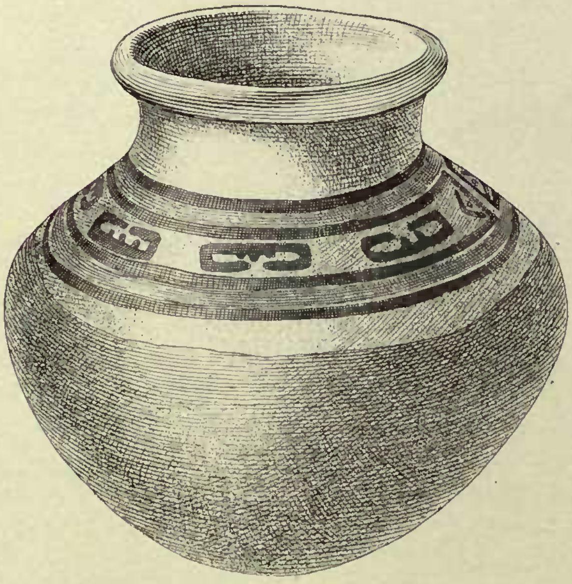

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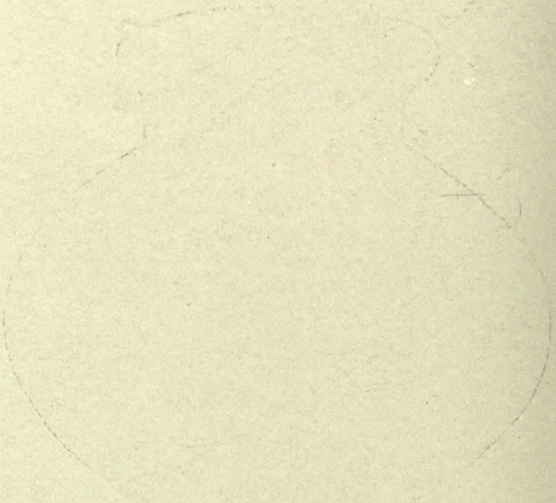


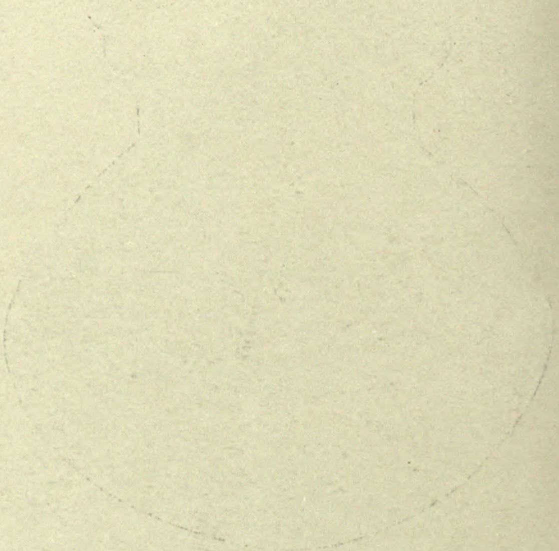


Plate XXXV

Series of vases in which the meaning of the zonal shoulder decoration is somewhat obscure. Alligator ware. Page 132, 133.

Figure *a.*—Vase in which the alligator motive is recognizable in the zonal shoulder decoration, the design being repeated three times. $^{3}/_{5}$

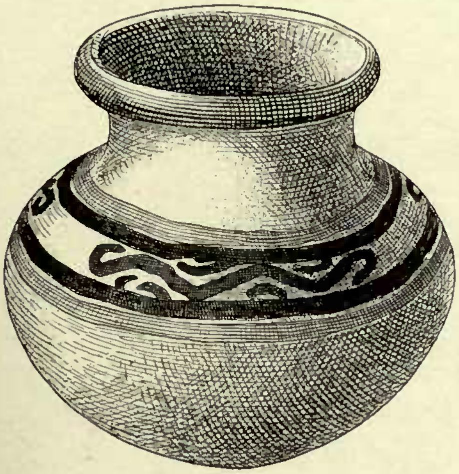
Figure *b.*—Vase in which the zonal decoration is the multiple body-line of the alligator with body-markings in the hollow of each curve. $^{3}/_{5}$

Figure *c.*—Vase of which the elaborate motive on the shoulder is referable to the alligator (see text-fig. 226). $^{1}/_{2}$

Figure *d.*—Vase in which the shoulder zone is divided into three panels, each ornamented with the dorsal-view motive. $^{1}/_{2}$

Figure *e.*—Vase in which the shoulder decoration is probably a variant of the dorsal-view motive. $^{1}/_{2}$

Figure *f.*—Vase in which the shoulder ornamentation consists of paired concentric rings. $^{1}/_{2}$



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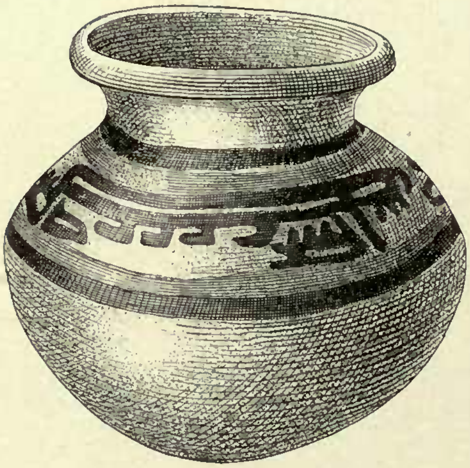

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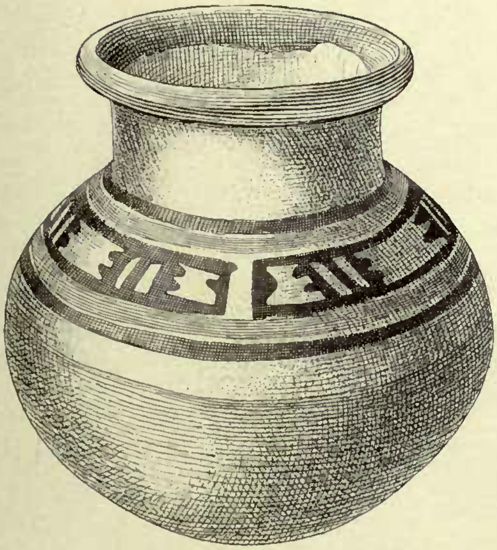

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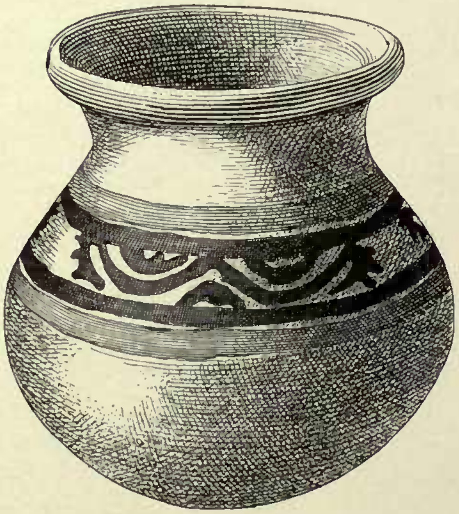

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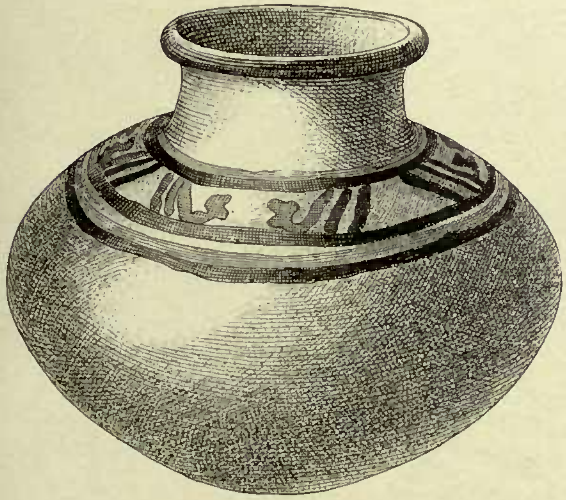

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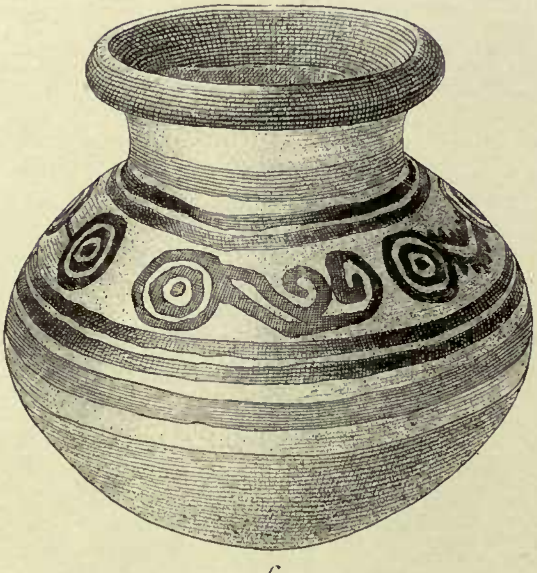

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Plate XXXVI

Series of vases with three arched panels, illustrating freedom in the treatment of alligator motives. Alligator ware. Page 134.

Figure *a.*—Characteristic vase in which the decoration of the arched panels consists of the dorsal-view motive. $^1/_2$

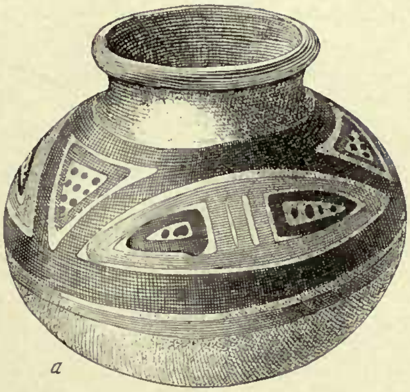
Figure *b.*—Vase whose panel design is a variation of the dorsal-view motive. $^1/_2$

Figure *c.*—Vase in which the association of spots and zigzag lines suggests a multiple body-line with dermal markings; from Divala. $^1/_2$

Figure *d.*—Vase, the panel design of which is a typical dorsal-view motive; from Divala. $^1/_2$

Figure *e.*—Vase in which the short vertical bands crossing each panel are accompanied by scale-group symbols; from Divala. $^1/_2$

Figure *f.*—Vase whose panel design is a variant of the dorsal-view motive; from Divala. $^1/_2$



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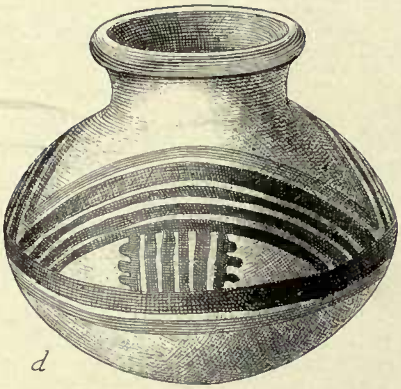

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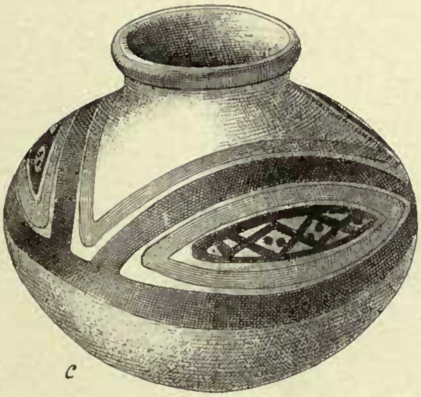

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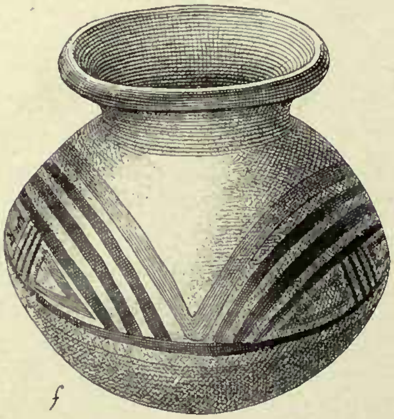

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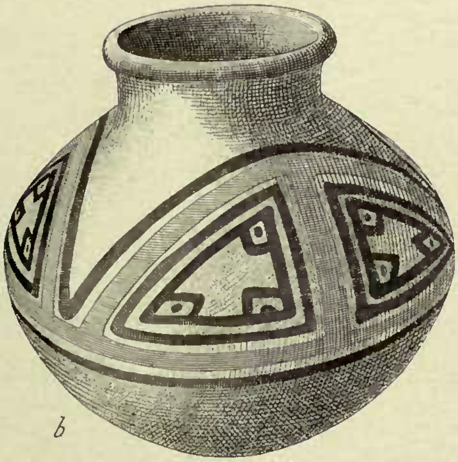

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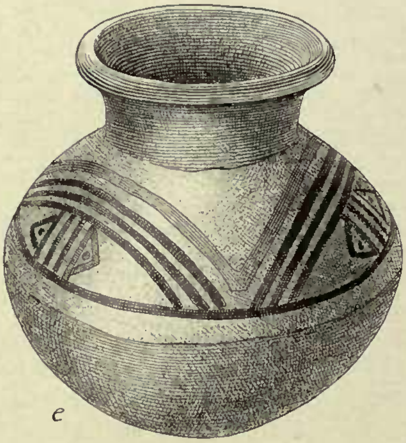

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Plate XXXVII

Series of vases in which the shoulder decoration consisting of four rosette patterns is the dominant feature. Alligator ware. Page 136.

Figure *a.*—Vase with alligator motives ornamenting lip and shoulder. $^{2}/_{3}$

Figure *b.*—Small vase with alligator motives on the lip, also on the raised nodes of the shoulder; from Bugavita. $^{2}/_{3}$

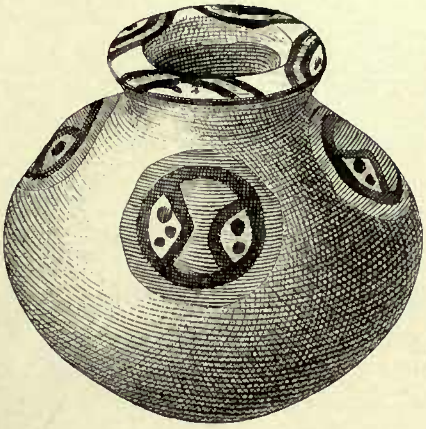
Figure *c.*—Vase in which the design is confined to the rosettes on the raised nodes, the central feature of each being three scale-group symbols. $^{1}/_{2}$

Figure *d.*—Vase in which the scale-group motives are disengaged from the inner circle of the rosette; the interspace is marked by a cross; from Divala. $^{1}/_{2}$

Figure *e.*—Vase in which the center of the rosette is a cross accompanied by four scale-group motives; from Divala. $^{1}/_{2}$

Figure *f.*—Vase in which the accentuated nodes are applied to the outer surface, the painted decoration being a variant of that in figure *e.* $^{1}/_{3}$

PLATE XXXVII



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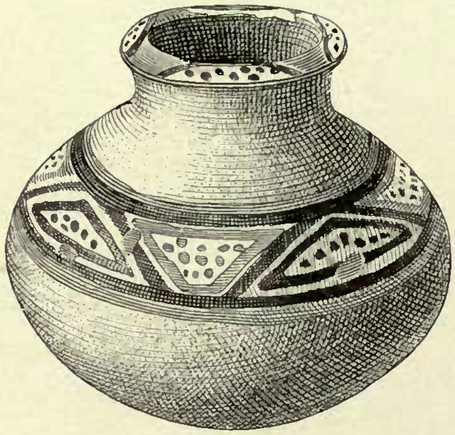

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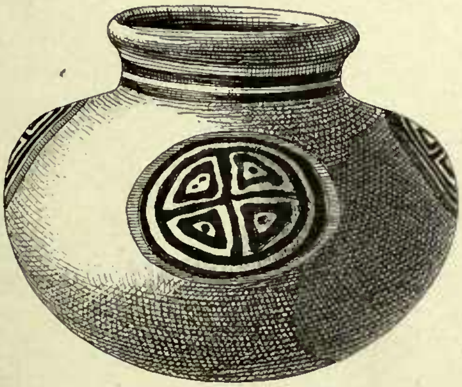

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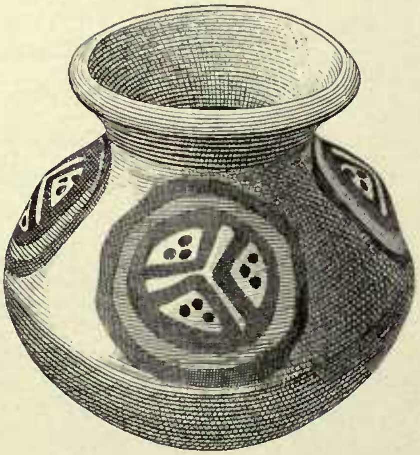

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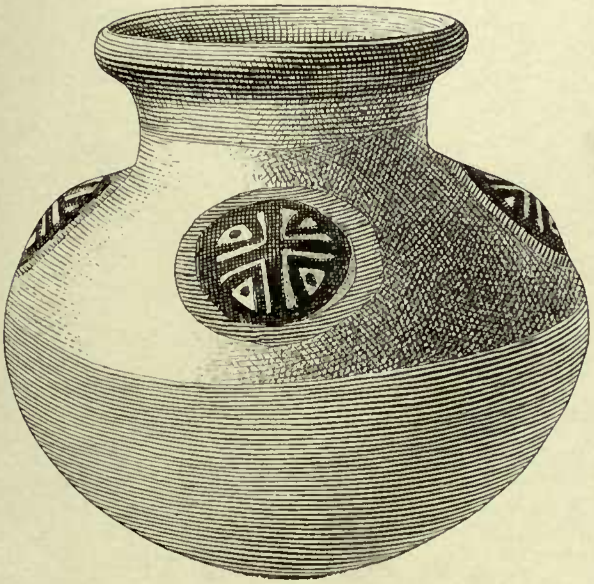

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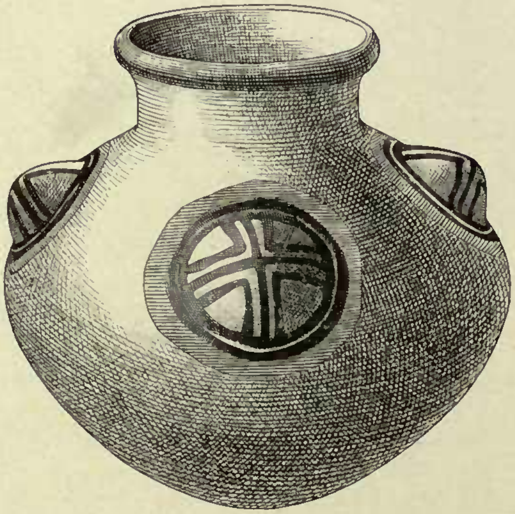

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Plate XXXVIII

Representative series of vases with plastic features applied to the shoulder. Alligator ware. Pages 136, 137.

Figure *a.*—Vase ornamented with a human head and short upturned tail alternating with painted representations of the alligator; from Vivala (not Divala). $^1/_2$

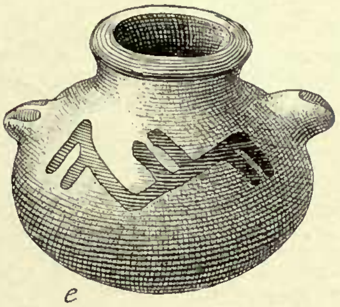
Figure *b.*—Vase with unique form of painted alligator motive. $^1/_2$

Figure *c.*—Vase with two opposed plastic heads on the shoulder, the painted alligator form showing stylistic tendencies. $^1/_2$

Figure *d.*—Vase illustrating a diagrammatic treatment of the double-headed alligator between the plastic shoulder ornaments. $^1/_2$

Figure *e.*—Small vase in which the painted ornament represents the double-headed alligator with both nuchal crests applied to the same neck. $^1/_2$

Figure *f.*—Vase in which the relief ornaments are reduced to mere nodes, a panel containing a multiple body-line accompanied by dermal markings being placed on each side. $^1/_2$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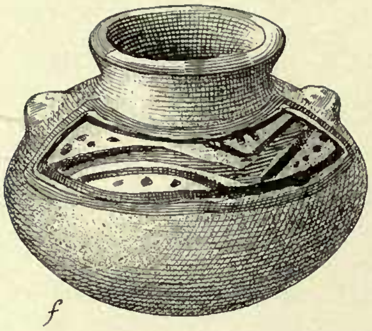
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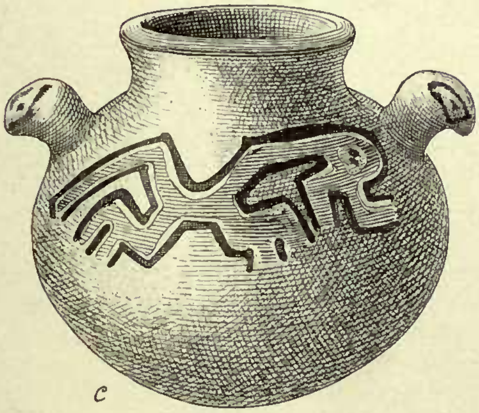
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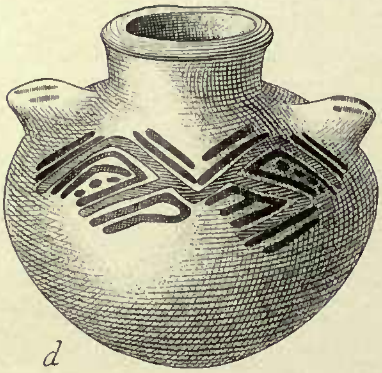
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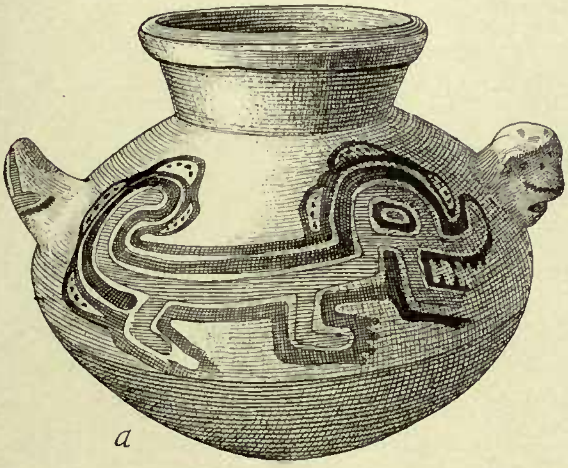
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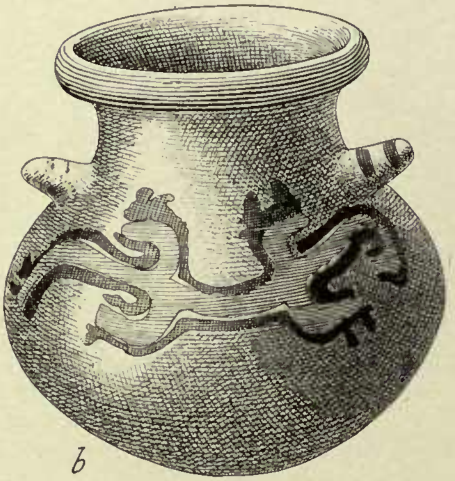
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Plate XXXIX

Series of rare tripod vases. Alligator ware. Pages 138, 139.

Figure *a.*—Tripod of which each panel decoration is formed by a series of scale-group motives; from El Banco. 1/2

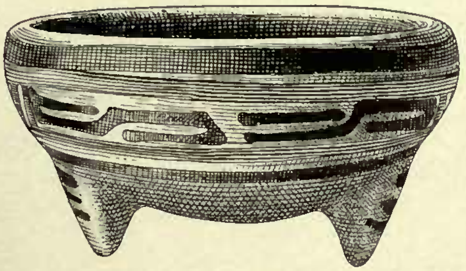
Figure *b.*—Tripod in which the two double panels are decorated with scale and spine symbols; from Jacu. 1/2

Figure *c.*—Wide-mouthed tripod with spine symbols arranged in groups of two; from Jacu. 1/2

Figure *d.*—Shallow tripod bowl with horizontal bands decorating the rim, from the lowest of which hangs a series of spine symbols in black; from Divala. 1/2

Figure *e.*—Tripod bowl with gently incurved rim; the central zone is divided into three panels, each containing sigmoid patterns; from Vivala (not Divala). 1/2

Figure *f.*—Tripod vase in which the shoulder decoration consists of three arched panels; the designs in these are probably variants of the dorsal-view motive. 1/2



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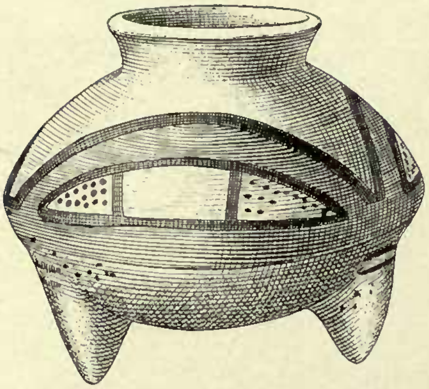

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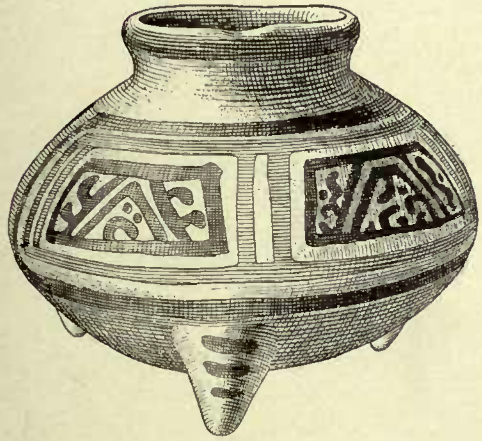

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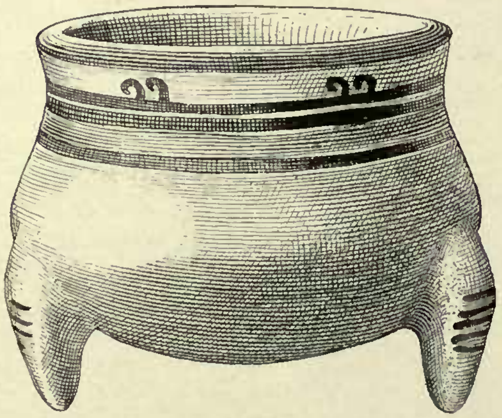

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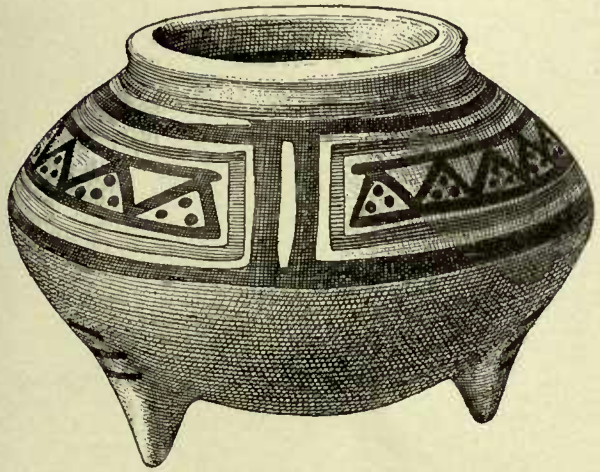

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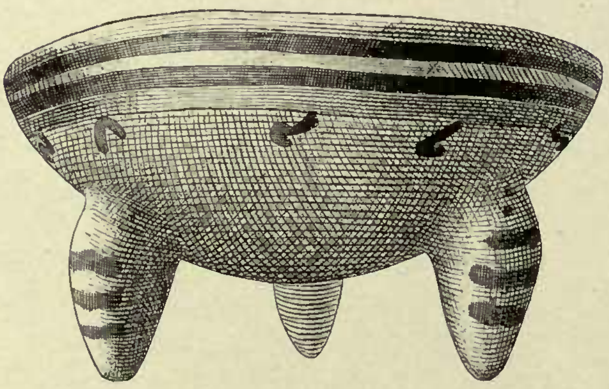

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Plate XL

Series of vases combining plastic and painted decoration.
Alligator ware. Pages 139, 140.

Figure *a.*—Tripod vase with shoulder ornaments representing the animal head and tail in the round, also with painted figures of the alligator on each side. $^1/_2$

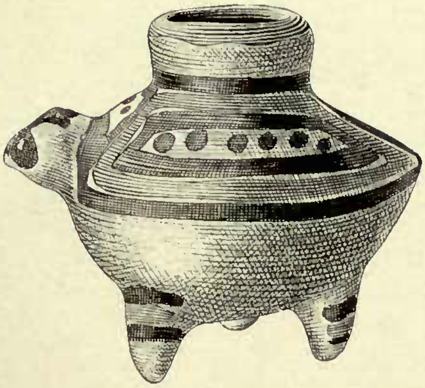
Figure *b.*—Tripod in which both plastic and painted ornaments are probably referable to the alligator. $^1/_2$

Figure *c.*—Small tripod illustrating the combination of relief and painted decoration. $^1/_2$

Figure *d.*—Vase with plastic shoulder ornaments, the panel designs being the scale-group motive. $^1/_2$

Figure *e.*—Small tripod in which the painted ornament supplements the plastic. $^1/_1$

Figure *f.*—Compound tripod with a series of alligator motives about the two rims. $^1/_2$



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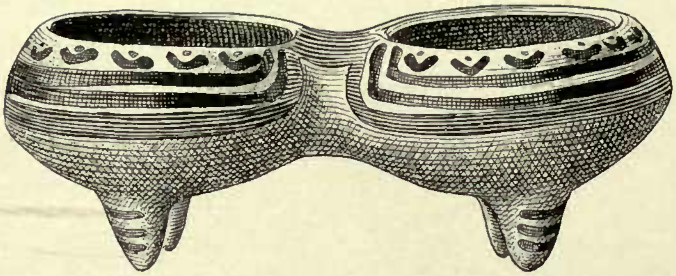

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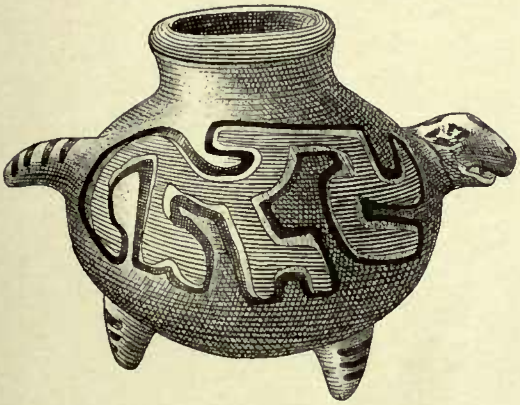

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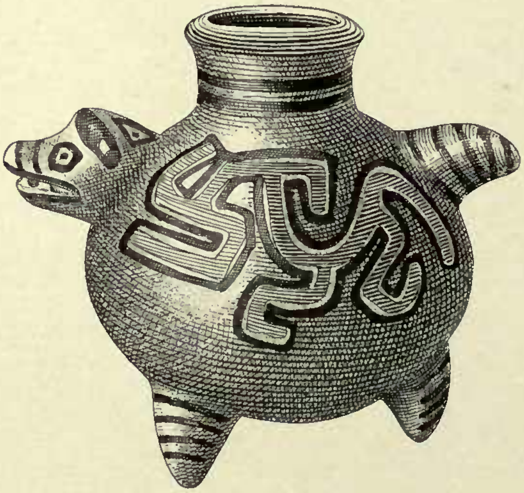

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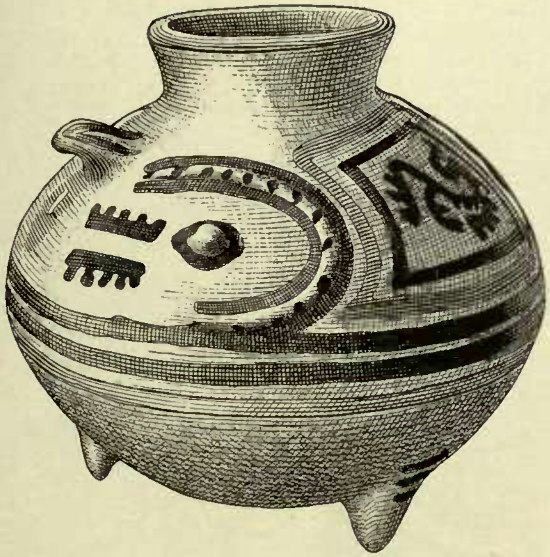

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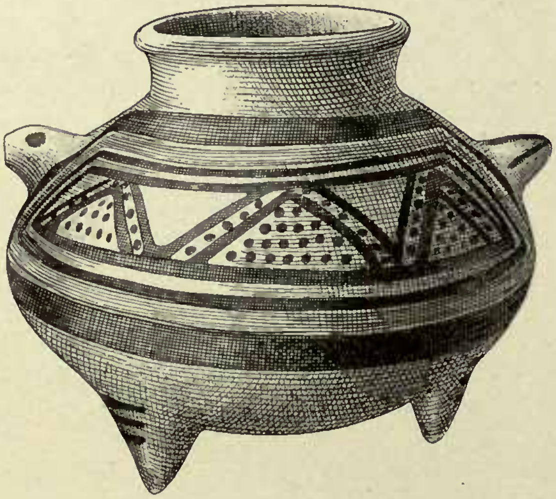

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Plate XLI

Series of vases representing a variety of unusual forms.
Alligator ware. Pages 140, 141.

Figure *a.*—Tripod vase resembling the armadillo. $^1/_2$

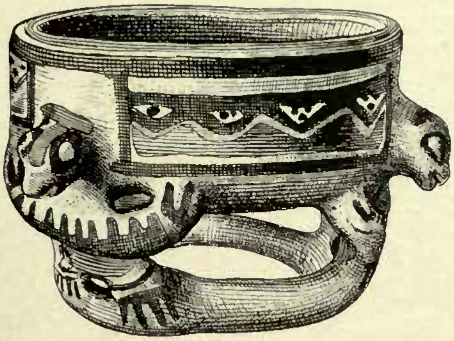
Figure *b.*—Tripod vase resembling the crab, and with animal heads for supports. $^1/_3$

Figure *c.*—Tripod representing the jaguar-god, the arms of which serve as handles to the vessel; on the panel at the back is a painted figure of the alligator; from San Carlos. $^1/_3$

Figure *d.*—Tripod probably representing the jaguar-god. $^1/_2$

Figure *e.*—Unique thick-walled vase with annular base, and a series of scale-group symbols encircling the bowl; from Jacu. $^1/_2$

Figure *f.*—Unique form of vase supported by three half-human forms standing on a ring-shaped base; the panel designs consist of the alligator motive. $^2/_3$



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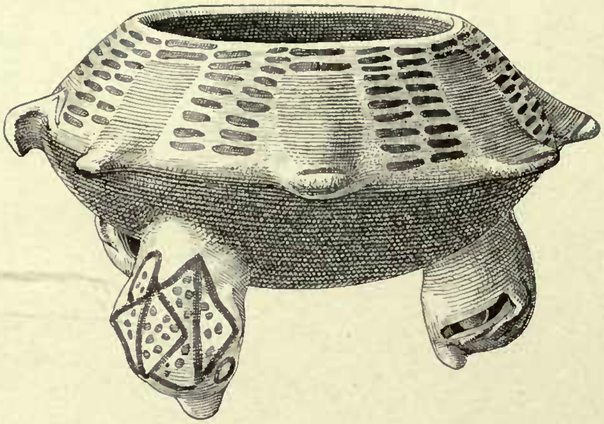

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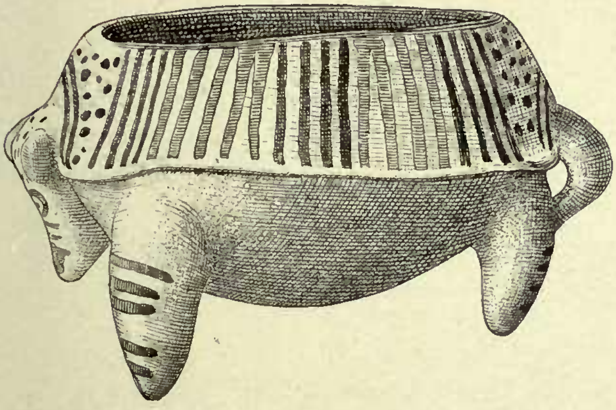

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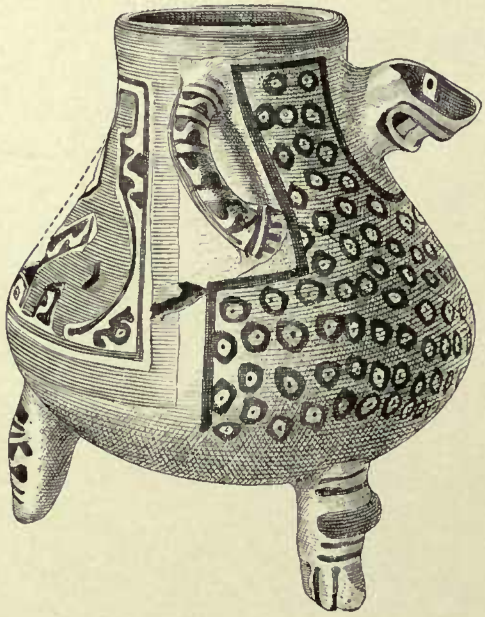

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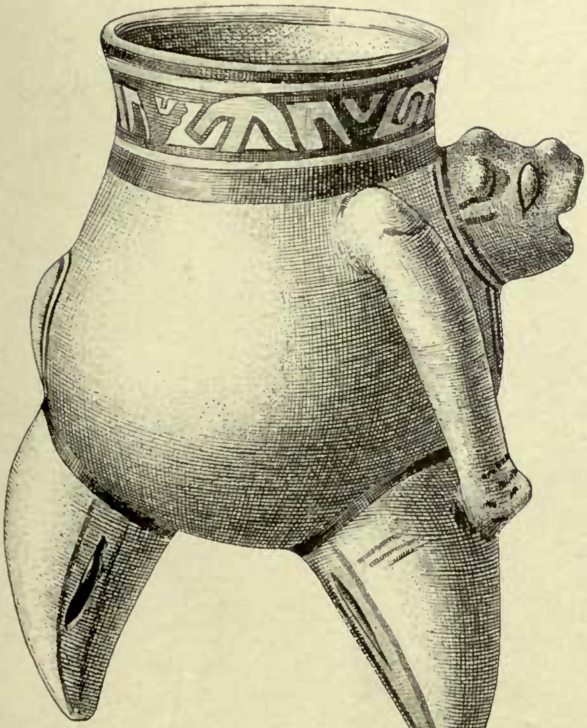

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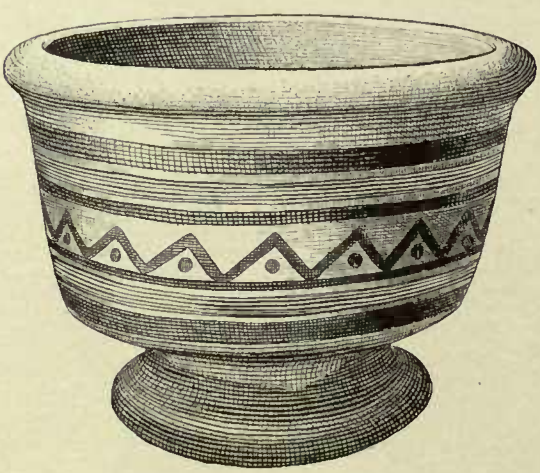

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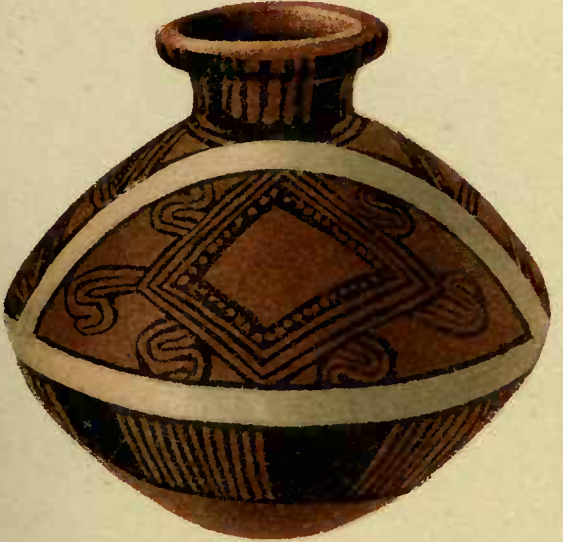
Plate XLII

Lost color ware and alligator ware. Pages 112, 141, 142.

Figure *a.*—Small vase beautifully modeled and painted, illustrating the use of white bands crossing the original ground of red; from Divala. Lost color ware. $^3/_5$

Figure *b.*—Vase in which the peripheral band and those tangent to the neck are red on a light ground; from Divala. Lost color ware. $^3/_5$

Figure *c.*—Rare form of vase illustrating the use of engaged plastic life forms as supports, the figures being apparently those of the human female; representations of the alligator adorn the panels of the neck and sides (see text-fig. 242). Alligator ware. $^2/_5$



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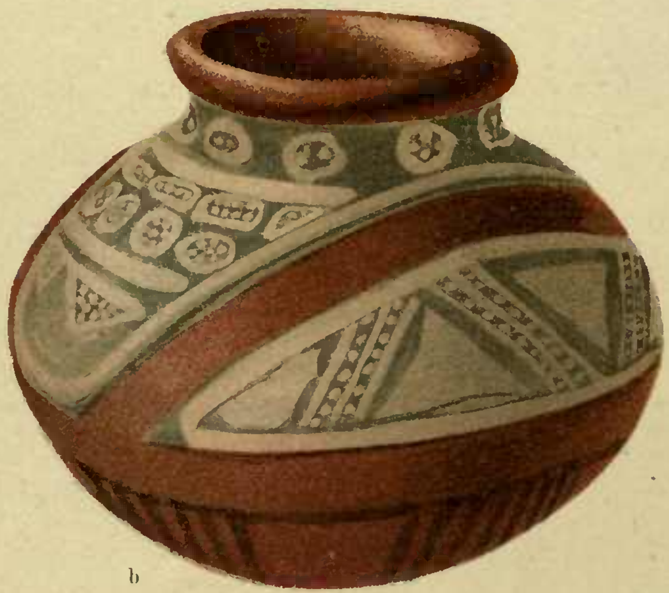

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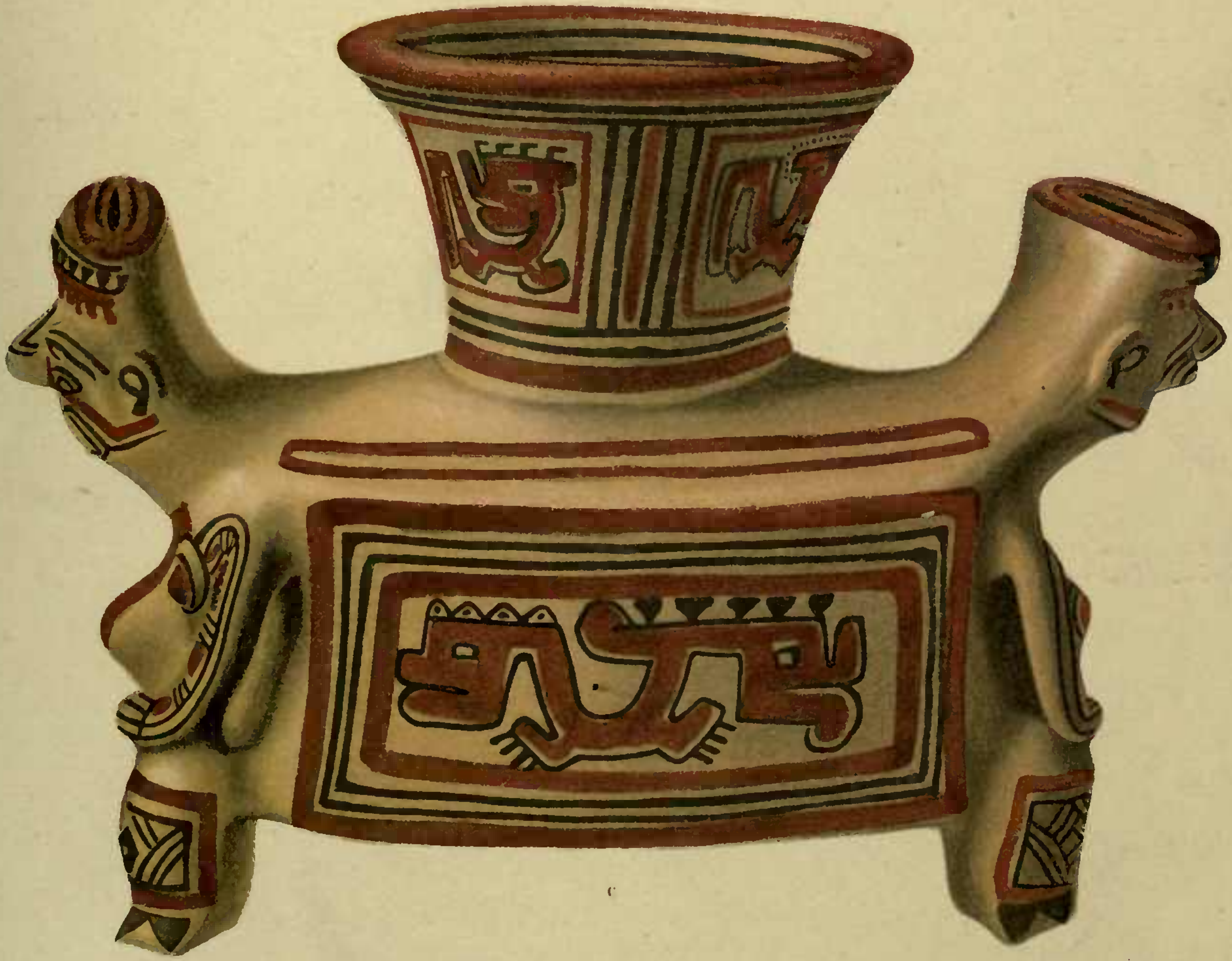

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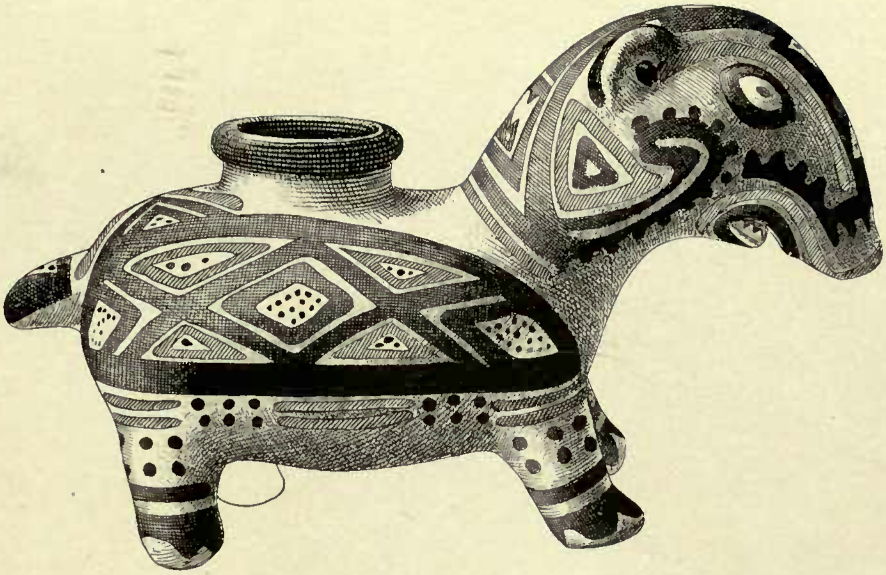
Plate XLIII

Distinct animal forms with vesicular bodies. Alligator ware. Pages 143—145.

Figure *a*.—Fusion of vase and animal form representing the jaguar; jaguar-like markings appear about the eyes and on the throat, while the neck, sides and tail are decorated with a series of 89 panels, all enclosing alligator motives. $^1/_3$

Figure *b*.—Dorsal view of the foregoing.

Figure *c*.—Vase representing the tapir, the painted designs being traceable to the alligator. $^1/_2$



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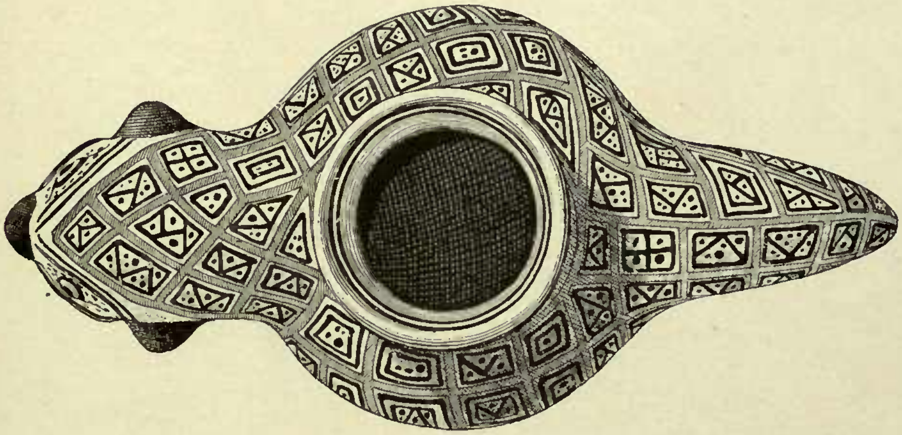

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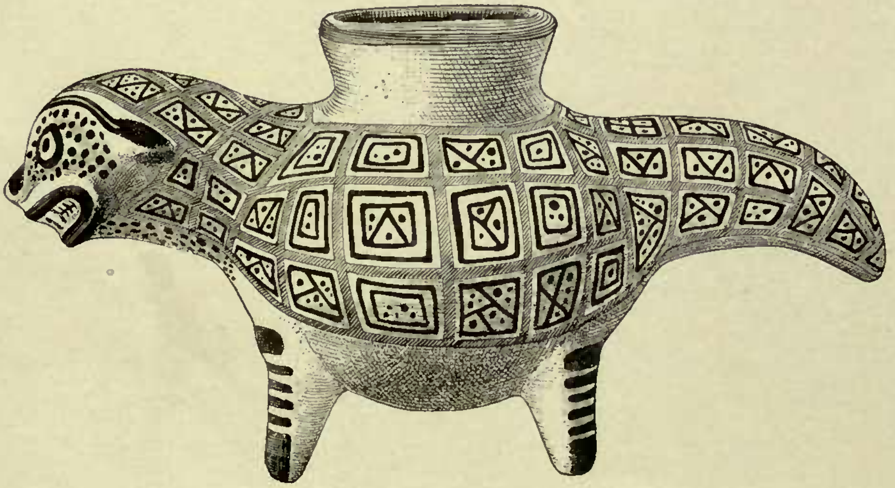
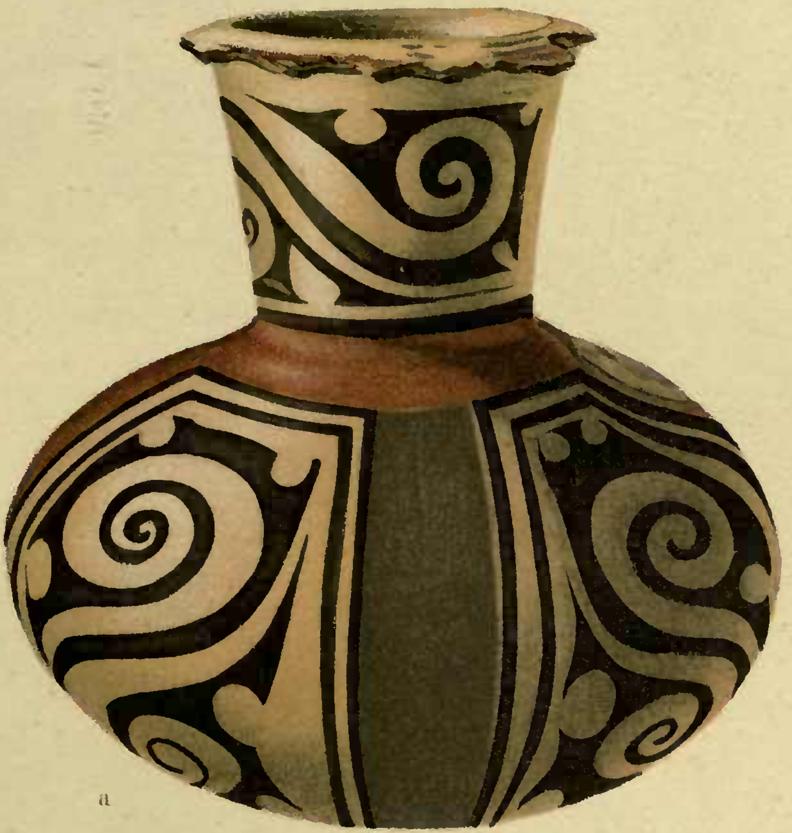


Plate XLIV

Polychrome ware. Pages 152—154.

Figure *a*.—Pitcher-shaped vase with horizontally flattened lip; the handle is broken off; the notches cut from the scrolls on the neck and panels represent engaged alligator motives (see text-figs. 253 and 254); from Gualaca. $^2/_3$

Figure *b*.—Vase of eccentric form, the chief ornamental feature being the elaborate branching scroll filling each of the two shoulder panels; here the egaged alligator motives are more easily distinguishable than in figure *a*. $^1/_2$



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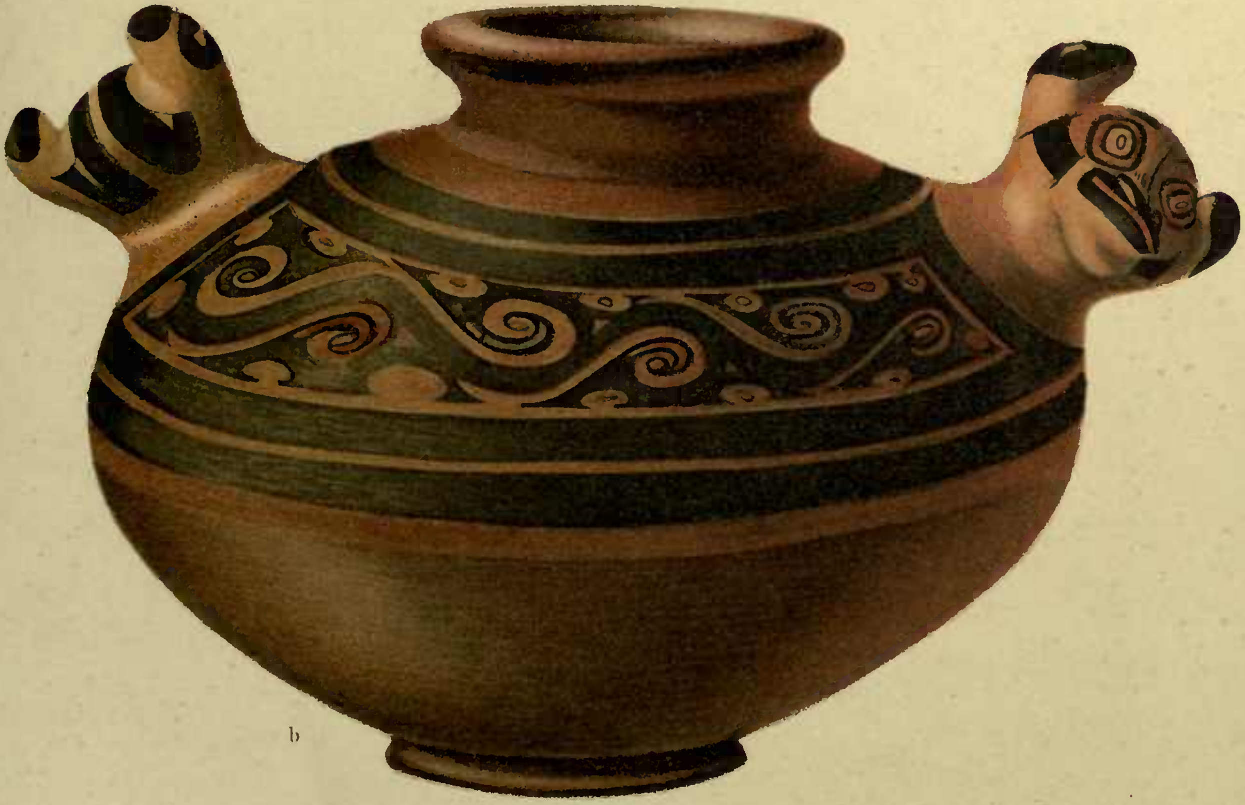

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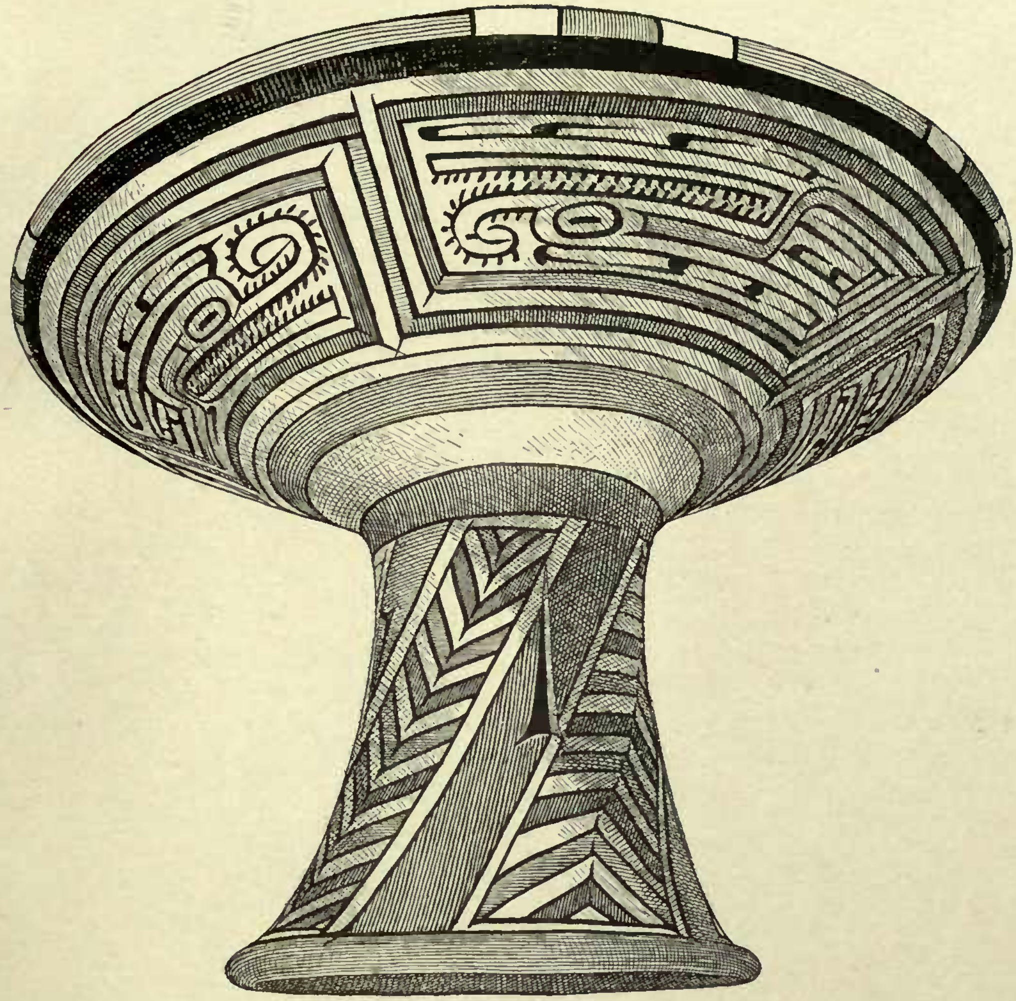
Plate XLV

Superb example of ancient Chiriquian decorative art.
Polychrome ware. Pages 157, 158.

Figure *a*.—Unique vase consisting of a shallow bowl mounted on a hollow perforated stand, every visible part being ornamented in black, red and purple on a cream ground. The design on the outer surface of the bowl resolves itself into two units of the classic fret, while that on the interior (see frontispiece) is a representation of the alligator-god accompanied by alligator symbols. $^1/_2$

Figure *b*.—Detail (from fig. *a*) of the classic fret composed of a common body-line, each end of which terminates in an alligator head. $^1/_2$



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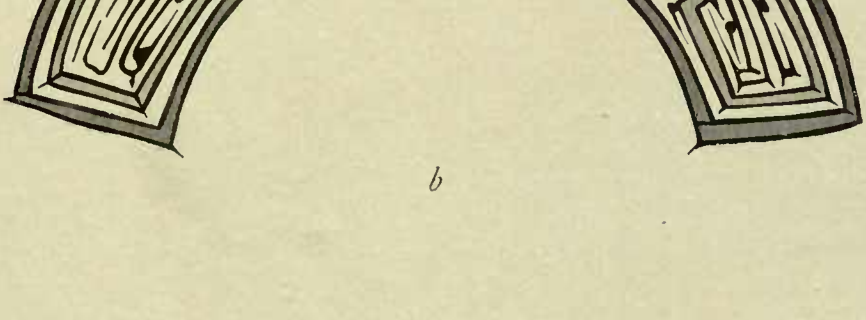

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Plate XLVI

Series of clay stools. Armadillo ware. Page 162.

Figure *a.*—Elementary type of stool resembling one class of metate as well as the recent Chiriquian wooden stools. $^1/_3$

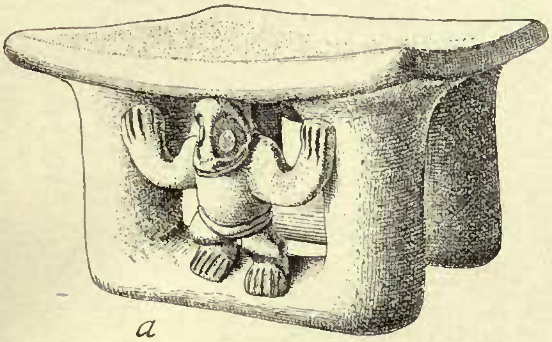
Figure *b.*—Stool illustrating the transition from the square type to the prevailing round type. $^1/_3$

Figure *c.*—Stool with gently convex top. $^1/_3$

Figure *d.*—Stool with seat that rests on a hollow stand, whose walls are continuous except for narrow vertical slits. The flattened or beaten character of the supporting figures resembles work in metal. $^1/_3$

Figure *e.*—Low stool with convex seat resting on a hollow perforated stand, to which are applied figures of men and monkeys. $^1/_3$

Figure *f.*—Stool, the seat of which is supported by figures of monkeys standing on a ring-shaped base. The same type is seen among stone stools. $^1/_3$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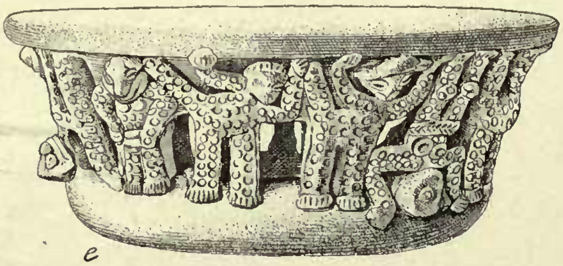
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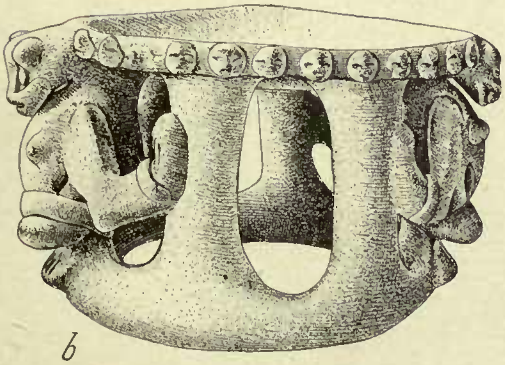
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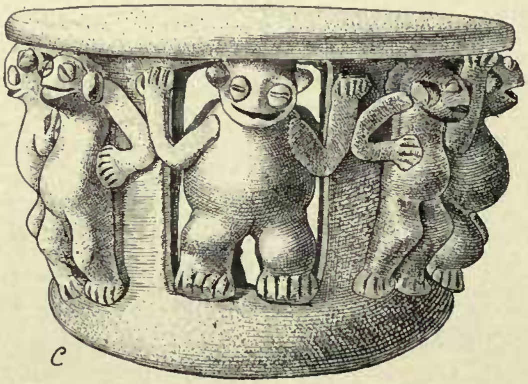
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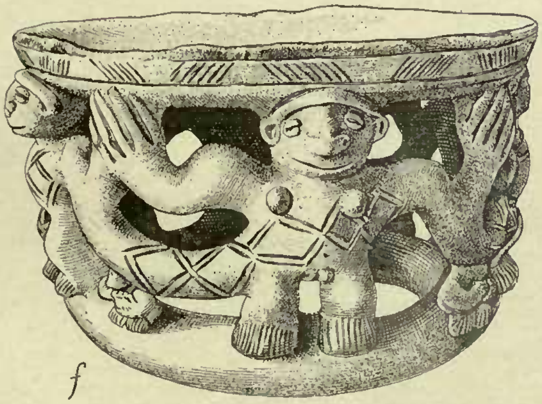
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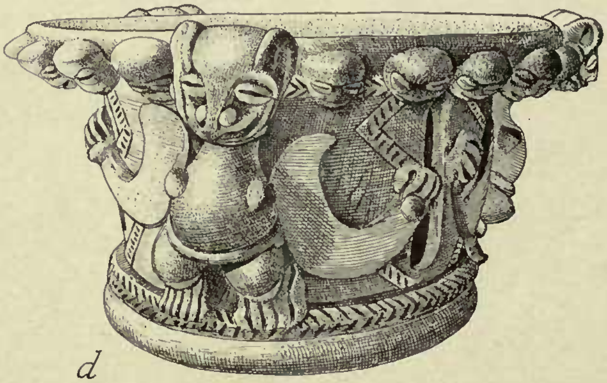
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Plate XLVII

Series of whistles in the form of birds. Alligator ware. Page 174.

Figure *a.*—Parrot-shaped whistle with vestigial head on the breast and a real head that has the appearance of being removable. $^2/_3$

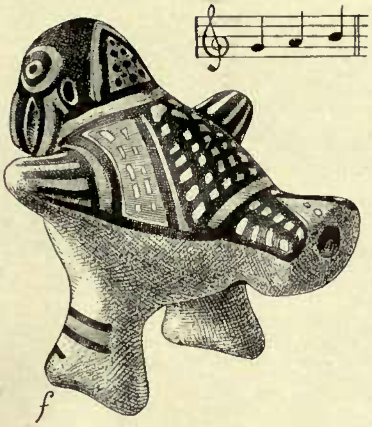
Figure *b.*—Bird-shaped whistle with vestige of a head on the pointed breast and head on the shoulders that has the air of being detachable. $^2/_3$

Figure *c.*—Bird-shaped whistle with head turned so as to heighten the resemblance to a former adjustable state. The painted spot on the breast represents a vestigial head. $^2/_3$

Figure *d.*—Bird-shaped whistle. $^2/_3$

Figure *e.*—Bird-shaped whistle with primitive vestigial head on the breast; from Jacu. $^2/_3$

Figure *f.*—Bird-shaped whistle. $^2/_3$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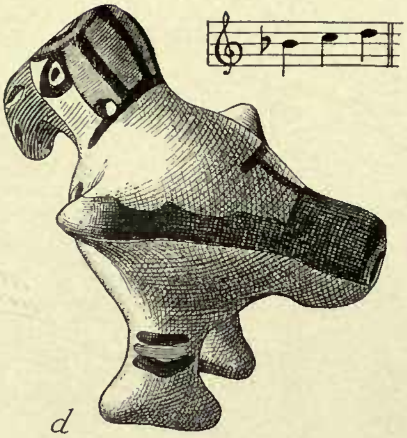
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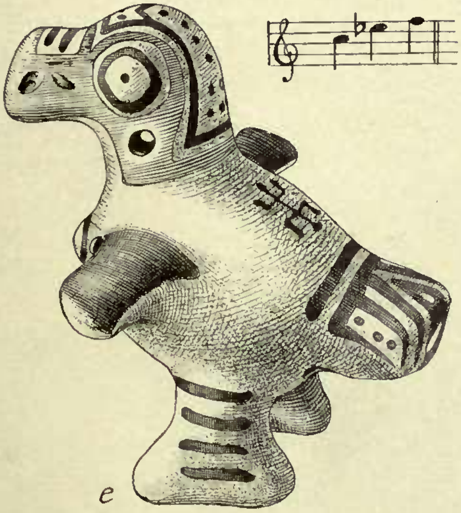
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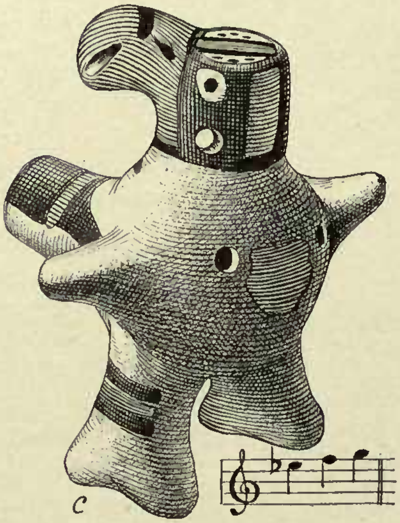
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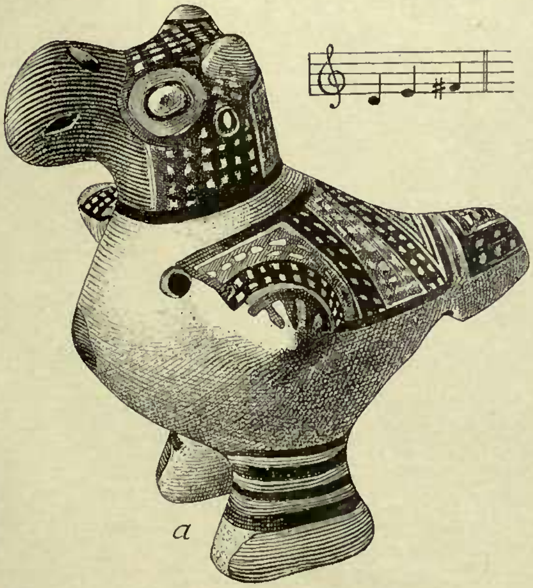
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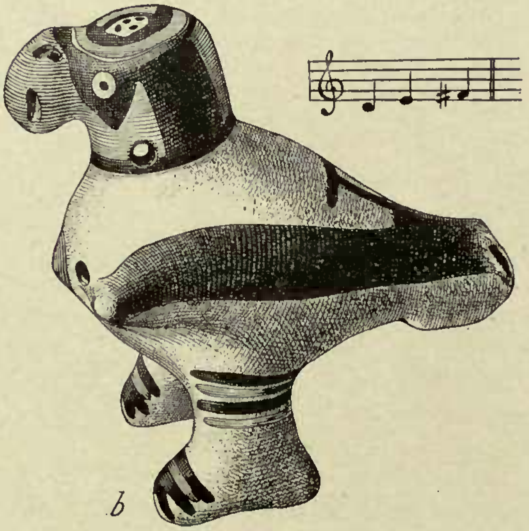
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Plate XLVIII

Series of gold images. Pages 203–217.

Figure *a*.—Image of fine gold in the shape of a frog with flattened feet and with serpent motive ornamenting the head. $^1/_1$

Figure *b*.—Image of low-grade gold representing a frog with eyes resembling sleigh-bells; the metal ball in each is practically pure copper. $^1/_1$

Figure *c*.—Image of fine gold representing a double bird. $^1/_1$

Figure *d*.—Realistic jaguar figurine of fine gold. $^1/_1$

Figure *e*.—Human figurine of high-grade gold, holding a rattle in the right hand and something resembling a flute in the left (see Pl. XLIX, figs. *b* and *c*); the apparel is represented by head ornament, loin-girdle, apron and knee-bands. $^1/_1$

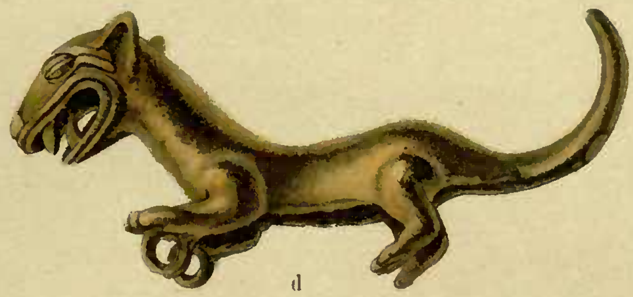
Figure *f*.—Human image of low-grade gold represented as in the act of pulling two snakes from its wide-open mouth. The head-dress consists of two serpent heads. $^1/_1$

Figure *g*.—Image of fine gold representing the alligator-god, the flattened bars at the head and feet each being a common body for the two alligator heads attached. $^1/_1$

Figure *h*.—Figurine of low-grade gold representing the crab-god holding in his mouth a human foot and leg severed at the knee. $^1/_1$

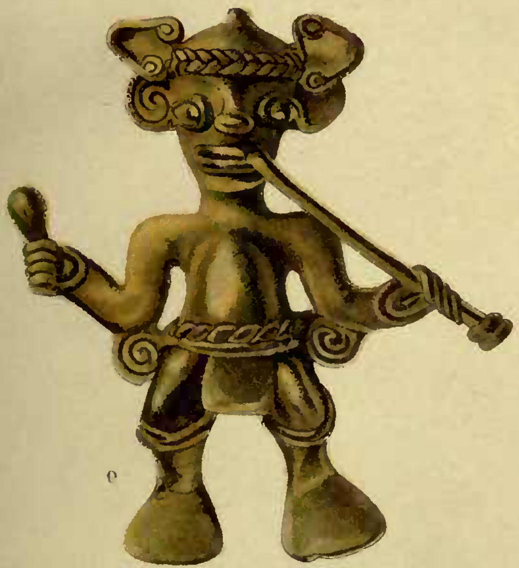
Figure *i*.—Animal figurine of fine gold. $^1/_1$

i



d

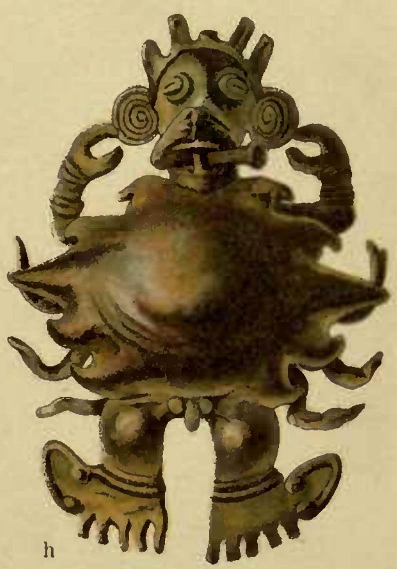
c



e

f

a



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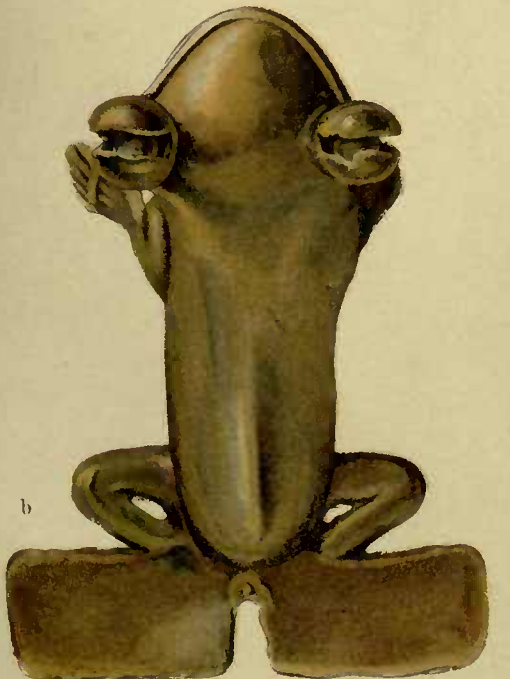

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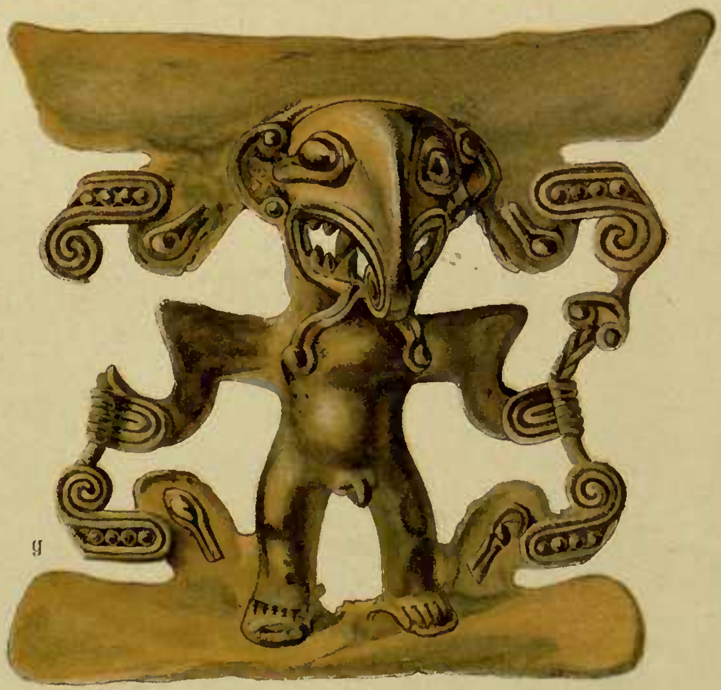


g

Plate XLIX

Series of gold images approximating the human form. Pages 209 212.

Figure *a.*—Group of two figurines evincing skill and taste in the art of casting. $^{1}/_{1}$

Figure *b.*—Human figurine with rattle in the right hand and a reed-shaped object held to the mouth by the left hand. $^{1}/_{1}$

Figure *c.*—Human image probably representing a musician or god of music: *c'*.—Side view of same, showing effects of having seen much service. $^{1}/_{1}$

Figure *d.*—Human image with arms terminating in rattles. Lamson collection. $^{1}/_{1}$

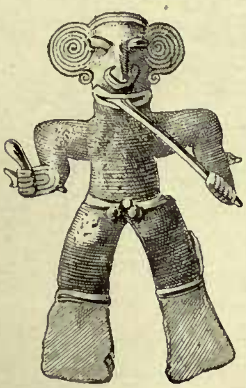
Figure *e.*—Human image holding a rattle in the left hand. Heye collection. $^{1}/_{1}$

Figure *f.*—Human figurine with head-dress resembling the "skil" of the Tlingit Indians. Heye collection. $^{1}/_{1}$

Figure *g.*—Group of two human figurines suggesting the art of Colombia. Metropolitan Museum. $^{2}/_{3}$

Figure *h.*—Human image set in a frame; *h'*.—Side view of same, illustrating skill in hammering separate castings. $^{1}/_{1}$

PLATE XLIX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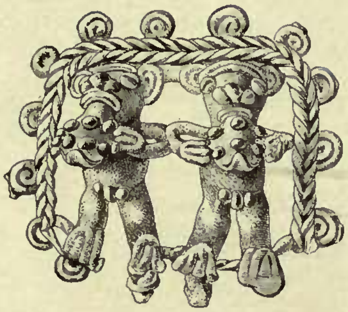
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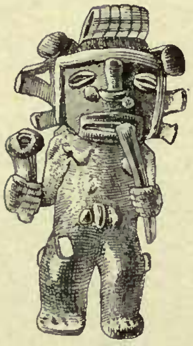
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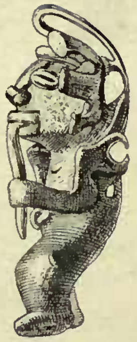
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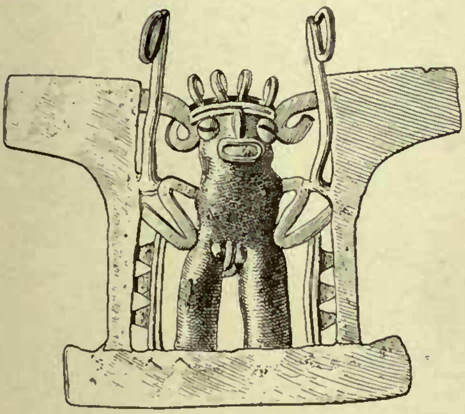
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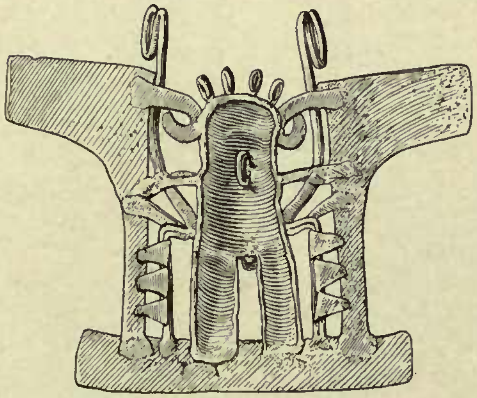
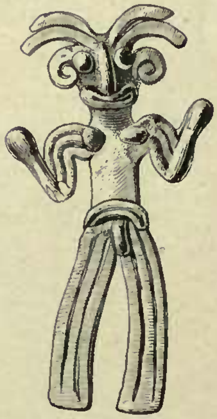

h'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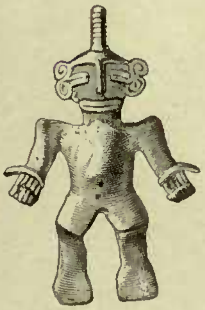
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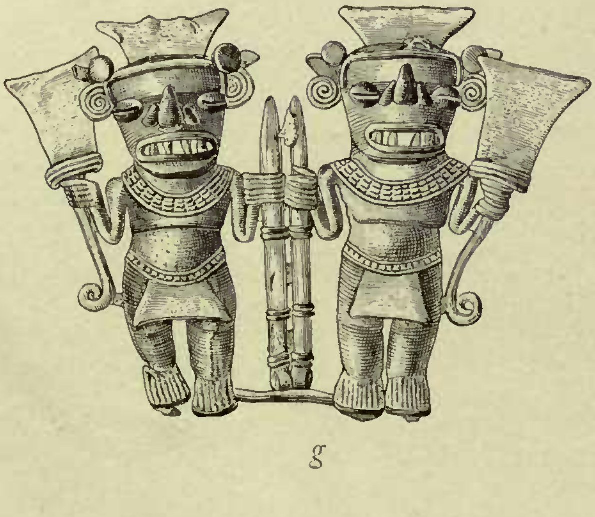
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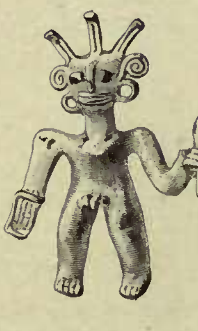
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